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(NEW SERIES.)

EDITED BY J. H. POOLEY,
Professor of Surgery in Starling Medical College,
COLUMBUS, OHIO.

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OHIO

MEDICAL AND SURGICAL JOURNAL.

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ORIGINAL COMMUNICATIONS.

Art. I.—*Syphilis of the Nose and Larynx.* By Clinton Wagner, M.D., of New York, Physician to the Metropolitan Throat Hospital, Fellow of the New York Academy of Medicine, Member of the New York County Medical Society, of the New York Neurological, etc., etc.

Secondary syphilis of the nose begins as an ordinary catarrh or cold in the head, accompanied by a profuse discharge of a thin, watery, acrid character, which is increased by changes of temperature; or it may be scanty, and of a thick, yellowish appearance. We may find pain extending to the frontal, maxillary, and sphenoid sinuses, a sense of stuffiness, partial or complete loss of smell, difficulty in breathing through one or both meati, alteration of voice, but an absence of the attacks of sneezing, which generally accompany ordinary catarrh.

An anterior rhinoscopic examination reveals a dusky red color and turgidity of the Schneiderian mucous membrane, with superficial ulcerations on the alæ, septum, and middle turbinated bones. The posterior nares will present in the mirror a swollen, hypertrophied condition of the mucous membrane covering the turbinated bones, especially the middle and inferior, and also the inferior and posterior border of the septum nasi. The same dusky hue and turgidity will be observed extending over the posterior surface of the velum, the vault of the pharynx, the orifices of the Eustachian tubes and fossæ of Rosenmuller, producing, in some cases, occlusion of the orifices of the tubes, and, consequently, deafness.

Moreover, we frequently find erosions or superficial ulcerations of the same character as the mucous patch occurring in the localities just enumerated.

In proportion to the thickening of the mucous membrane covering the septum nasi and turbinated bones, will the narrowing of the meati depend. Frequently the passing of a sound of the smallest calibre is rendered impossible.

The condition thus described may occur simultaneously with the early secondary skin affections, or subsequently, and it is a sure precursor of the tertiary in the form of ozæna, unless arrested by proper treatment.

Diagnosis.—With other symptoms of syphilis existing, or a clear history of the disease in the individual, the diagnosis is easily made; but without these there is nothing that will enable us to pronounce upon the true character of any given case. To explain further, the discharge, thickened mucous membrane, superficial ulceration, pain, etc., are precisely what you find in ordinary catarrh or struma, and in such cases, if proper local treatment had been previously tried for a reasonable length of time without good result, I would then put the patient under specific treatment. I have done this in a large number of cases in which the history of syphilis was extremely doubtful, and the good results therefrom convinced me that I have not erred; and I have no hesitation in asserting that, in my opinion, very many of those obstinate cases of so-called nasal and naso pharyngeal catarrh are of specific origin.

Hutchinson mentions syphilitic coryza as one of the forms of hereditary syphilis, but says it disappears within the first year.

Durham, Hill, and other writers on syphilis, refer to it. Hill thinks it develops into ozæna about the tenth or eleventh year of life.

Ozæna Syphilitica is that form of tertiary syphilis characterized by ulceration of the mucous membrane of the nares, with or without necrosis of the bones and cartilages, and accompanied by a fœtid discharge and offensive breath.

Ulcerations of the nasal fossæ may be classified under two heads—non-specific and specific. The former include: 1st. Those of strumous origin. 2d. What are termed by Follin* "professional ulcers," occurring in those whose vocations compel them to inhale the noxious vapors arising from mercury, arsenic, and bi-chromate of potassa, and which, by constantly irritating the mucous membrane, bring about an ozænic condition. 3d. Certain diseases, such as typhoid fever, glanders, diphtheria, scarlet fever, and other infectious diseases. Indolent sub-mucous abscesses are formed, which, burrowing under the fibrous mucous membrane, attack the subjacent bone; sequestra result, which keep up an ulceration of the soft parts until eliminated or removed by surgical operation.

The scrofulous variety generally follows a chronic coryza, in which the pituitary membrane becomes hypertrophied and almost fungous in its character. The acrid secretions, having no free exit from the narrowing or occlusion of the meati, produce erosion, and finally ulceration of the mucous membrane, which may extend to the bone, which in scrofula rarely becomes primarily affected.

In the ozæna of syphilis, the periosteum or fibrous mucous membrane is generally primarily attacked, the inflammation extending to the bones, although it may be simply an extension of the superficial ulcerations of the secondary form I have already described.

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* "Traité Elémentaire de Pathologie Externa." By E. Follin et Simon Duplay.

Trousseau says that the coryza always precedes the ozæna in children. Hill and other writers hold the same view. Hutchinson thinks the coryza disappears often in hereditary syphilis after the first year. In my opinion, the coryza is always present, but in a form so modified as not to attract the attention of those having charge of the child, and later in life the ozænic condition is insidiously established.

Follin mentions another variety, which he describes as occurring in individuals who show no indication of syphilis, in whom there is a nasal ulcer resisting all treatment, and which disappears only to reappear after a short time.

Trousseau, and before him Boyer, classed them with the herpetic diathesis, and the ulcers as a variety of psoriasis.

D'Azembuja, in a recent article on syphilis in the Gaz. de Hopital, describes an ozæna of a herpetic nature.

Desaiverve, in support of this theory, relates the case of a man who suffered for a long time with an inveterate psoriasis, and was constantly throwing off from his nostrils albuminous plugs moulded upon the turbinated bones, the mucous membrane being ulcerated at that point. He says the cases have this peculiarity, that there is no osseous lesion, differing in this respect from scrofula or syphilis.

I have met with several cases in my practice in which the "albuminous plugs" of Desaiverve were thrown off. One case I might mention: Mr. A., aged thirty-seven, merchant; primary syphilis fifteen years before consulting me; the nasal trouble had existed several years, and resisted all treatment; the mucous membrane covering the turbinated bones, as seen in the mirror, was extensively ulcerated; no osseous lesion; the plugs were frequently thrown off; no psoriasis in this case, but had it previous to consulting me. The case finally yielded to specific treatment, and was discharged cured. I am inclined to regard the psoriasis in the cases referred to by Desaiverve as of specific origin, and the ozæna consequently syphilitic.

Pathology.—Of the pathological lesions found in syphilitic ozæna, but little is known on account of the infrequency with which examinations of the parts are undertaken. Follin, who has made numerous observations, gives the following as the result:

"Ordinarily, we find the pituitary membrane much reddened, eroded, or ulcerated, and sometimes granular, like the conjunctiva in certain forms of blepharitis, while the adjacent mucous membrane may be healthy but somewhat redder than usual. In grave forms, ulcerations, with deep loss of substance, most frequently seated at the junction of the cartilage and perpendicular plate of the ethmoid bone, although they may be found elsewhere.

"The same character of ulcerations exist on the posterior parts of the nasal fossæ, and which during life can only be demonstrated with the aid of the rhinoscope. Wherever the seat of the ulceration may be, the neighboring mucous membrane is thickened, puffed, and fungous, bleeds easily, and we frequently find it raised from the burrowing of pus, which leaves bare the subjacent bone. We do not always find the clear, cut, raised edges which we are accustomed to see in other syphilitic ulceration; on the contrary, the edges are often flattened, ragged, and fungous, the surface is covered with a grayish detritus, or a brown, fœtid crust, above and around which collects a purosanguinolent secretion; and in these cases there always exists at the point of ulceration advanced osseous alterations, the bone carious, softened, or necrosed.

"In some cases we find in the neighborhood of the ulcer which has exposed the bone a series of sinuses and fistulous passages, which detach the mucous membrane and perforate it again at a more or less distant point. Finally, in extreme cases of syphilis, we find total destruction of the bones of the nose, ethmoid and vomer, and the whole nose may disappear in consequence. In this variety there is sometimes extension of the suppurative process to the meninges, thrombus of the ophthalmic vein, and consecutive coagulation of the sinuses of the dura mater."

Treatment.—For the secondary form, mercurials internally, followed by a course of potass. iodid., which should be continued for weeks or months.

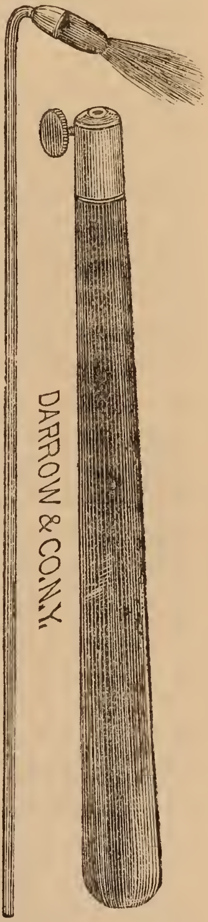
We have in this affection, as in chronic nasal catarrh, strictures, caused by thickening of the mucous membrane covering the turbinated bones and septum; it may be very slight, at one or two points only, or the entire passage may be almost entirely excluded, preventing the escape of the acrid secretion, and causing ulceration.

For several years past, in the treatment of these cases, I have employed dilatation by means of metallic sounds, bent at the angle of the Eustachian catheter. My plan is to begin with a very small instrument, and if I succeed in getting it through the passage to permit it to remain for several minutes. This operation I repeat daily, gradually increasing the size of the sound until one corresponding to a number eight urethral catheter can be passed without pain or difficulty. The excessive hyperæsthesia which is always present at first is overcome after a few days' treatment.

After passing the sounds I use immediately a weak solution of carbolic acid in the form of spray, with compressed air from one of Darrow's "Air Pumps and Receiver," and Sass' tubes, after which I apply the following thoroughly to the thickened mucous membrane by means of a piece of fine cotton wool, wrapped around the end of a small silver probe:

℞. Iodini, grs. iii.
Potassii iodidi, grs. vi.
Thymol. glycerolis, gtt. lx.
Glycerinæ, ℥i. M.

For making applications to the posterior nares, I use daily in hospital and private practice an instrument devised by me several years ago. It consists of a small, soft, camel's hair brush screwed on a rod, the extremity of which is bent at an angle of about 45°. The rod is inserted into a handle, as represented in the following cut.



The advantage this simple instrument possesses over any other I have seen used, is, that it can be introduced behind the velum without coming into contact with the posterior wall of the pharynx, by which retching, gagging, and nausea are avoided. By means of it the solution can be thoroughly applied to the turbinated bones, septum, and the spaces between the septum and bones. The posterior surface of the velum can also be touched, as well as the orifices of the Eustachian tubes.

In addition to the above treatment, the patient should make use of the nasal douche once or twice daily.

Syphilitic Ozæna.—Potass. iodid. internally; also tonics, such as iron, quinine, with generous diet.

The local treatment should aim to remove all sources of irritation, such as dead bone and hardened crusts of dried mucous, the thorough and frequent cleaning of the parts by means of the nasal douche, with solutions of carbolic acid, clorinated soda or permanganate of potassa; to the ulcers, applications of nitrate of silver fused upon an aluminium rod, or a strong solution of sulphate of copper. I instruct my patients to use the douche at least twice in the twenty-four hours, and frequently during the day to snuffle through the nostrils to the mouth a weak solution of carbolic acid or salt and water.

By means of the spray of compressed air with sufficient pressure, the viscid mucous and hardened crusts which lodge in the meati and cling to the turbinated bones, vault of pharynx, and posterior surface of the soft palate, can be removed, and the parts thoroughly cleansed for medicated applications.

Dead bone should be removed as soon as practicable. If it can not be seized and withdrawn by forceps, an operation may be resorted to which has lately been performed with marked success in a few cases. It consists in separating the upper lip and nostrils from their attachment to the upper jaws by incisions through the mucous membrane of the mouth and dividing the cartilages. An excellent view of the nares is thus obtained, with ample space for the introduction of instruments.

SECONDARY SIPHILIS OF THE LARYNX.

Secondary syphilis of the larynx generally appears within a few weeks or months after the primary symptoms, simultaneously with the early skin and mouth affections, or later; it never precedes them.

The subjective symptoms do not differ from those of ordinary laryngeal catarrh. There is frequent desire to hawk or clear the throat of the accumulated mucous, impairment of voice, varying from slight hoarseness to complete aphonia, sometimes a short hacking cough, and an absence of pain unless the pharynx is involved.

A laryngoscopic examination will reveal a dark, dusky red appearance of the mucous membrane lining the larynx, the vocal cords congested or ecchymosed, or the mucous membrane covering them may be thickened or infiltrated, and sometimes in the more chronic cases resembling the roughened, granular appearance of chronic conjunctivitis.

We will occasionally observe also the mucous patch so common in syphilis of the mouth. It is found upon the epiglottis, the ventricular bands, true cords, and arytenoids. By some authorities it is thought to be an extension of the disease from the mouth. Others deny that it is ever seen in the larynx. In the large majority of cases the mucous patch will be found to coëxist with others in the pharynx, or on the tonsils, tongue, or soft palate.

The following brief notes of a few of the cases that have been under my treatment are typical of secondary syphilis of the larynx:

Case 1. Mr. J. Lawyer, aged 22. Consulted me for hoarseness. Had indurated chancre six months ago, followed by skin trouble. At the time of his first visit to me had mucous patches upon the inside of cheeks, on the tongue, on the inter-arytenoid fold and left ventricular bands, the vocal cords reddened and thickened. Voice very hoarse.

Case 2. J. M. Merchant, aged 37. Primary sore eleven months ago, followed by skin trouble. Has patches upon soft palate and under surface of tongue, and ventricular bands; has also enlargement of post cervical glands with alopecia.

Case 3. S. Patient at the Metropolitan Throat Hospital, aged 26. Primary eight weeks ago. Patches on tongue and inside surface of cheeks and right vocal cord, both vocal cords very much reddened and thickened.

TERTIARY SYPHILIS OF THE LARYNX.

Tertiary syphilis of the larynx has long been known and recognized, but before the introduction of the laryngoscope into general practice was regarded as a disease difficult to manage and frequently fatal, and although even now we are not able to overcome the ravages of the disease in all the cases that present themselves to us, we can at least relieve them of much suffering, and ward off the dangers of sudden death by timely operative interference.

It is characterized by extensive and deep ulcerations, appearing in the large majority of cases in the following order: 1st. Upon the free edge and posterior surface of the epiglottis, extending downwards on one side or covering the entire surface to the anterior commissure. 2d. The next in order of frequency are the vocal cords and ventricular bands; then the arytenoid cartilages and inter-arytenoid fold. While this order of attack is most frequently observed, cases do occur in which other parts are first invaded.

The ulcerations may coëxist with others in the pharynx and fauces, or they may appear before or after—most frequently the latter—or they may follow immediately the superficial ulcerations of the secondary form, in which case the sub-mucous cellular tissue becomes invaded, thence to the perichondrium, from which necrosis of the cartilages will ensue; or they may follow the softening of a gummy tumor; or they may originate in the fibrous covering of the cartilages, which is analagous to the periostium of bones, and extends outwards through the overlying soft parts.

The ulcers are deep, cupped, edges raised, and covered by a grayish detritus, sometimes mixed with blood. The destruction of tissue is extremely rapid in its progress, unless arrested by appropriate treatment.

Diagnosis.—To establish a differential diagnosis between tuberculosis syphilis and cancer of the larynx is often very difficult, particularly in hospital practice, where the patients either willfully or ignorantly fail to furnish us with a history of syphilis.

Cancer of the larynx is an extremely rare affection. The cervical lymphatics are engorged, the pain is constant, and of a more acute or excruciating character than in syphilis or tuberculosis. The cartilages are attacked at a comparatively early stage, and the ulceration is more likely to be unilateral, with extensive thickening of the neighboring parts.

The majority of writers on the subject assert that without the history of syphilis or the evidence of tuberculosis of the lungs we can not establish a diagnosis between syphilis and tuberculosis.

Türck says as a rule these ulcers have nothing characteristic.*

Mackenzie gives the "solid, pyriform swelling of the ary-epiglottic folds and the turban-like appearance of the epiglottis as characteristic of phthisis, and says in this affection thickening always precedes ulceration. In syphilis the extensive rapid ulceration is the distinctive manifestation."

Prosser James states that "the color of the mucous membrane of the throat in phthisis and syphilis is as suggestive as is that of the skin in the same affections. In the one the membrane is pale and anemic; in the other, dusky, dark-red, and in some cases mottled."†

Cohen thinks there is nothing "absolutely characteristic in the appearance of the syphilitic larynx, whether of the simple erythematous form or ulcerative variety."‡

Voltolini, on the other hand, claims that in all cases he can, without difficulty, establish a diagnosis between syphilis and tuberculosis of the larynx. He says: "In syphilis the ulcers resemble a dead body that has been nibbled by rats or mice. In tuberculosis the swollen, pale, almost transparent appearance of the arytenoid cartilages, and the collection of a large quantity of muco-purulent secretion in the inter-arytenoid space, he considers always diagnostic of phthisis, even if the lungs present no evidence of deposit. In syphilis there is an absence of this swollen condition and collection of secretion, and in its stead we find a greater destruction of tissue, and near the ulcers the parts degenerate into callosities, the time required for which would carry a case of tuberculosis to the grave."||

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* Krankheiten des Kehlkopfes. † Laryngoscopy. Prosser James. ‡ Diseases of the Throat. || "Die Anwendung der Galvanokaustik im Innern des Kehlkopfes und Schlundkopfes."

I offer the following as the result of my own observations: In tertiary syphilis the epiglottis is first attacked. Second, the vocal cords and ventricular bands; the ulcers are deeper and more defined than those of tuberculosis; there is generally perichondritis and an absence of the thickening of the aryepiglottic folds, which is always found in tuberculosis, and which I have never failed to observe. The mucous membrane in syphilis is dusky red; in tuberculosis generally pale and anemic. Finally, in ulcerative tubercular laryngitis I think deposit in the lungs will *always* be found.

Condylomata are frequently seen in syphilis; they are soft, white, and generally pointed, occurring on the inter-arytenoid fold, or just anterior to the arytenoids, or on the ventricular bands or vocal cords.

The following case, prepared for me by my assistant, Dr. C. M. Desvernine, is illustrative of the difficulty we sometimes encounter in establishing the differential diagnosis between tertiary syphilis and tuberculosis of the larynx:

P. G. B., aged thirty; married; occupation, clerk; applied for treatment at the Metropolitan Throat Hospital, October 13, 1875; states that his throat became sore several months ago; has dysphagia pain, inability to swallow solid food. A laryngoscopic examination showed the epiglottis reddened and very much swollen, and presenting the turban-like appearance so characteristic of the latter stages of laryngeal phthisis.

There was no history of syphilis in this case, but he stated that about four years ago he had had a severe attack of pneumonia. An examination revealed slight consolidation of the apices of both lungs. He was put upon cod-liver oil, and left after four days' treatment. No improvement.

Two months later he returned, the condition of the throat unimproved. After remaining a few days he left, with the intention of going to the South. He did not leave the city, however, but became worse, and was confined to his residence for two months. On the 23d of February he returned to the hospital. At this time he was very much emaciated from inability to take proper food, scarcely able to walk, great dyspnœa, with occasional attacks of spasm of the glottis, the epiglottis greatly swollen, œdematous, and slightly ulcerated on the right side. This ulceration increased, and the destruction of tissue was very rapid in its progress, which, together with an ulcer on the posterior pillar of the left side of the palate, unusual in phthisis, determined me to put the patient under treatment for syphilis. I began with ten grains potass. iodid. three times daily, and rapidly increased it to twenty grains five times daily. Within a week the destructive ulceration was under complete control, the swollen condition of the epiglottis had disappeared, and a satisfactory view of the parts below could be obtained. There was an absence of the thickening characteristic of tuberculosis, and, with the exception of slight ulceration of the right ary-epiglottic fold and right arytenoid, the larynx presented the appearance of health.

The patient has quite recovered in flesh and strength, and returned to duty. The lung complication, the absence of a history of syphilis, and the swollen, thickened, œdematous, and turban-like appearance of the epiglottis, misled me in my diagnosis of this case at first. The rapid progress of the ulceration, the ulcer in the mouth, and the disproportion between the laryngeal and the lung trouble, induced me to adopt the treatment for syphilis. As a rule, tubercular ulceration of the larynx does not appear until the second or third stage of pulmonary phthisis.

Sequelæ.—Stenosis of trachea or larynx, from cicatricial contraction; membranoid occlusion of larynx, formed of cicatricial tissue from ulceration; aphonia, from complete or partial destruction of the vocal cords; dysphonia, from an altered condition of the vocal cords, which is a very frequent sequel.

I refer to the thickened, roughened, uneven, appearance of the mucous membrane covering the cords. Approximation may be perfect, but hoarseness will result from inability to perform the finer vibrations.

Frequency.—At the Hospital for Diseases of the Throat, London, it is estimated that from forty to fifty per cent. of all cases that apply for treatment have syphilis. I have not seen a report of the proportion of laryngeal cases to those of the pharynx and nose.

At Guy's, Mr. Durham estimates that forty per cent. are syphilitic. Schrotter, in 3,700 cases of throat affections treated during three years at the General Hospital at Vienna, reports 120 of laryngeal syphilis—about one in every 35.

Of 55 cases of constitutional syphilis examined for me by Dr. Lowman, late of Charity Hospital, Blackwell's Island, 32 had the tertiary form, and 23 the secondary. Of the 32 cases of tertiary, 20 had laryngeal syphilis; and in the 23 cases of secondary, 19 showed manifestations of the disease in the larynx.

At the Metropolitan Throat Hospital, in 1,000 cases treated, 74 were syphilitic, of which 27 were laryngeal, 21 nasal, and 26 pharyngeal.

Treatment.— For the secondary form, mercurials, followed by potass. iodid.. Locally, during the early stages, applications with the brush of solutions of zinci sulph., ʒi to ℥i; ferri per chlor., ʒi to ℥i, or argent. nit., ʒi to ℥i.

For the thickening of the vocal cords seen in the more chronic cases, zinci chlor., ʒi to ℥i; cupri sulph., ʒss to ℥i; or the following:

Iodini, grs. iii.
Potass. iodid., grs. vi.
Glycerinæ, ʒi. M.

Vapor inhalations of creasote and the ol. folii pini sylves. will be found to act pleasantly as a soothing sedative astringent.

Abstinence from alcoholic drinks and tobacco during treatment should be insisted upon.

In the tertiary form, potass. iodid. should be freely given in large doses. If the ulceration depends upon the breaking down of a gummatous tumor, or if the tumor exists and has not began to soften, and is causing distressing dyspnœa from stenosis of the larynx, then you must rely upon potass. iodid. as your sheet-anchor. Valuable time is lost, and the patient's life is endangered, by giving ordinary doses of the drug.

In a case recently under my treatment of gummatous tumor on the left ventricular band, almost completely closing the glottis, and causing extreme dyspnœa, I began with grs. xxx three times daily, and rapidly increased the quantity until I reached ʒvi in the twenty-four hours. The tumor disappeared within a few days, and the man escaped tracheotomy, which at one time I thought inevitable.

Locally, insufflations of iodoform and applications of argent nit. and cupri sulph., and sprays of acid carbolic, are very beneficial.

51 West Thirty-fifth street.

Art. II.—*Chronic Non-Malignant Ulcers.* Read before the Pickaway County Medical Society. By S. D. Turney, of Circleville, Ohio, Adjunt Prof. of Obstetrics, etc., Starling Medical College, Columbus, Ohio.

This subject may seem to some of you a small matter to engage the attention of a body of mature physicians, but it is by no means without importance. All over the country are men and women afflicted with these always annoying, and sometimes positively painful sores, who, having tried the infallible ointments and poultices of sympathizing neighbors, having limped from doctor to quack and from quack to doctor, having deluged themselves with the infallible remedies so kindly put within the reach of the afflicted by our numerous druggists, settle down to the maxim "that what can't be cured must be endured," and as contentedly as they can, limp through the balance of their existence.

Nor is it only as a local disease—a matter of pain and annoyance—that we must look upon this subject. There is a popular idea that these sores are preservative of the general health, that they are outlets for something in the blood—some noxious humor—which, if not drained off, would spend its poisonous force on vital organs; and I fear that even some physicians, too easily adopting the traditions of our medical forefathers, share in this loose opinion, and consider the chronic ulcer, which by long residence has gained its right of citizenship, as a kind of supplementary emunctory. But in what sense can it be an emunctory? There is in its ichor neither urea, uric acid, creatine, or any of the constituents of healthy urine. There is neither bile, stercorine, or carbonic acid. There are none of the products of retrograde metamorphasis, nothing but molecular degenerations of the chemical results of the reactions of inert matter. It is but a destructive waste of organic life, and is only an increased burden on the already over-taxed energies of a lessened vitality. It is true that chronic ulcers do not directly cause death, but in addition to the mental, moral, and general nervous irritability which they produce, the constant drainage of nutrient elements from the system, and the continual absorption of the vitiated products of decomposition, must injure the general health and indirectly shorten life. There is a growing belief among pathologists in local causes of general infection. The absorption of putrid pus is a cause of pyæmia. Excessive formation of the same results in amyloid degeneration. Tuberculosis is by many regarded as the effect of local dépôts of cheesy matters or inflamatory degeneration of the lymphatic glands; and there is reason to believe[1] that absorption from these sores hastens the progress of atheromatous and fatty degenerations of the various atrophies and changes which pertain to advanced life. Of this I am certain, that within my observation where cure has been effected by local means alone, without any restorative constitutional treatment, the general health has been undoubtedly improved, and the patient, to a certain extent, rejuvenated.

In another point of view the subject is not unworthy of discussion. There is nothing insignificant in medicine. There are no isolated phenomena. Under the slightest manifestation of life or disease lie the broad principles which make unities of life and disease. As the same law which governed the fall of the apple keeps the earth forever whirling in its orbit, so in a simple pimple are the fundamental laws which govern all inflammation; and he who thoroughly understands all that goes to the formation, progress, and final cure of an ordinary boil, has mastered the whole theory of inflammation, and is ready to carry a perfected knowledge to the cure of its larger manifestations in more vital organs.

So, whether we look upon it in regard to frequency, to difficulty of cure, to effect on the general health, or to the broad pathological lessons which it teaches, the subject is well worthy of our consideration.

An ulcer is but a sore: a chronic ulcer an old sore. This by no means scientific definition will convey to your minds as definite an idea of the subject as a more elaborate description. Definition in our science of medicine is not always possible. Any language which would include all the forms and phases of ulceration, would transcend the narrow compass of definition and expand to an exhaustive treatise. In its simplest form, an ulcer is a healing sore—an open wound, whether from violence or disease, gradually filling up by granulation, cicatrization, and final construction of new tissue. But all the forces in even a healing sore do not tend to recovery. There is death in this life. Pus carries away a portion of the plastic material, and the products of tissue destruction are found in the serum which exudes from it. There is decay going on with repair, a tearing down with this building up; and it is only in that the repair exceeds the destruction that the sore is eventually healed. It is a war of forces. If the reconstituting forces are in the ascendency, the processes go on to recovery; if the destructive forces, there is extension of the ulceration; if there is equilibrium, there remains the stationary sore—the intractable chronic ulcer.

There are many conditions of the system which give chronicity to the ulcer. In general terms, whatever lowers the vitality of a part, lessens its power of vital resistance, and is a predisposing cause of ulceration. The continuance of such condition is a cause of chronicity. Many illustrations of this generalization will occur to you: The want of reparative power in the impoverished and contaminated blood of chronic alcoholism, the troublesome bed sores, and frequently fatal ulceration of Peyer's patches in imperfectly nourished cases of typhoid fever, the proneness to gangrenous sores in the more pernicious forms of cerebro-spinal meningitis, and the marked tendency of scurvy and diabetes to intractable ulcerations. In all these diseases there are enfeebled action of the heart and a deficient supply of a vitiated and impoverished blood. These are but temporary conditions; the disease subsiding, the sore heals. But there are other causes more persistent in character. There are certain conditions in which the circulation of the blood, either locally or generally, is habitually retarded. The simple retardation of the current of blood through a part, by lessening the supply of nutrient material, is a cause of chronicity.

One of these conditions is age. In the decline of life the heart propels the blood with a feebler beat; the arteries losing their elasticity, become rigid tubes, the toneless veins dilate, and are overburdened with the sluggish current. Advanced age is peculiarly liable to intractable chronic ulcers.

The obstruction to, and the retardation in, the flow of the blood is greatest in the legs—the most remote parts of the body from the heart. They most suffer from its feebler impulse. The force of gravity is also against the onward flow, and the venous walls receiving a fluid robbed of its nutritive qualities, atrophy, lose their tonicity, become varicose, dilate until the thinned valves, no longer resting in apposition, allow the whole weight of the column to fall upon the more dependant part of the body. So it is upon the legs—the peculiar seat of varicosities—we almost always find the typical chronic ulcer.

Another, and a physiological cause of retardation of circulation and varicosities, is pregnancy. The gravid womb by pressure temporarily obstructs the circulation in the veins of the lower extremities. The muscular coats and valves of these veins become so much impaired that, although there is removal of the obstruction, the power of restoration is lost.

Women who have rapidly borne many children are peculiarly liable to chronic ulcers of the legs.

Constipation and obstruction in the portal circulation, although in a milder degree, may also act in this direction.

I believe that all chronic ulcers not dependant on cachexias, such as I have previously mentioned, are due to this stagnation and consequent impoverishment of the blood. There may be accidental causes for the production of the sores, and accidental condition of the system maintaining them, but these causes and conditions passing away, the sores remain from the retardation of the blood.

I have been particular in bringing this view of the pathology of chronic ulcers before you, because on it is based a rational, and what in my hands has proved to be a rapid, easy, and permanent cure.

Taking this broad view, it is unnecessary to weary you with minute details of the various forms and appearances of chronic ulcers. The text-books give you various names to suit the differing appearances—the acute, the fungous, the irritable, the indolent, etc. This is very scientific, but I think this complicated classification has a tendency to distract the attention from the underlying phenomena which give unity to all. The different forms which these sores present are probably only due to difference in temperament, or habits of life, or idiosyncrasy, or the location of the sore. They are but accidental variations of one diseased condition.

I shall be equally brief upon the subject of treatment. Tonics and alteratives when the general health is involved, the removal of hepatic obstructions and constipation by appropriate medicine and diet, soothing or stimulating poultices and ointments applied to the ulcer, the application of *continuous* pressure by bandages or adhesive straps, and, above all, rest in bed, or at least in the horizontal position, are advised in the text books, and such treatment is frequently followed by success. But many of these sores are rebellious to this, and even to the more heroic blistering, cauterizing, and incising; or, if healing does take place, they again break out upon the resumption of the ordinary labors and routine of life. With me the ordinary treatment has been slow, tedious, exacting upon patient and physician, and very unsatisfactory in final result. I had long cast about for a better. Over two years ago I was treating one of those intractable ulcers on the leg of a woman of more than sixty years. The sore was of many years standing, situated over the internal malleolus, oval in shape, about two inches in its long diameter, with hard, thickened, everted edges, and a base utterly destitute of healthy granulations. The leg nearly to the knee was covered with a fiery red, sweating, eczema. The veins were turgid and varicose. I had tried the changes on ordinary and extraordinary medication, with no apparent improvement. During this time I had occasion to use Esmorch's anæmic bandage for the removal of a tumor from a leg. In using this I was struck with two things:

first, the complete bloodlessness and dryness of the tissues; and second, the marked hyperæmia which soon followed its removal. Indeed, the frequent occurrence of troublesome parenchymatous hemorrhage after the use of this bandage, is to me the only objection to its surgical employment. These observations led me to the use of the bandage in the case of chronic ulcer I was then treating. I saw that the veins would be not only emptied of their load of impoverished and vitiated blood, but would be refilled with a fresh charge of oxygenated, nutritive blood. I applied the elastic bandage as tightly around the limb as high as the knee, as if I had intended to do a bloodless amputation. I left it on as long as the patient would bear it, say about ten minutes. This was repeated once a day. No other treatment, local or constitutional, was pursued. The patient, a woman of active habits, was allowed to go about her ordinary avocations. In a few days improvement was marked, and the ulcer went steadily to rapid and permanent healing in less than three weeks. So firm is the cicatrix that it has resisted a subsequent attack of acute eczema.

Since then I have used the same method of treatment in eight intractable ulcers of long standing—one in a woman of seventy years, of twenty-five years' continuance. The daily application of the elastic bandage in the manner described; no other treatment, local or constitutional, was given—no confinement to bed or elevation of the member involved. They have all made rapid and permanent cures.

In conclusion, let me briefly recapitulate. Chronic non-specific ulcer is produced by injury or disease acting upon a part where power, vital resistance, and repair is lessened; the cause passing away, the ulcer is perpetuated through the damage done to the blood-vessels and consequent stagnation of blood. The arteries carry less oxygenated, vitalizing blood to the part; there is anæmia. The veins are overloaded with impoverished blood, vitiated from absorption of decomposed matter, and unfit for the proper nutrition of the parts. There are toxæmia and spanæmia. The powerful pressure of the elastic bandage unloads the over-burdened veins of this impure fluid, and the subsequent dilitation of the arterials and capillaries admits of a fresh charge of oxygenated, nutritive blood. The sore heals. The curative effect is not transient. The tissues of the veins, supplied with a better nuitrition, recover their lost tonicity and re-assume their natural caliber and functions. The vitality of the parts thus restored, the cure is permanent.

This method of treatment, then, is not the application of sustained pressure by any of the ordinary modes of bandaging. It is an intermittent pressure, causing, firstly, anæmia, and subsequently hyperæmia.

Incidentally I have alluded to the cure of varicose veins. Let me here say the elastic bandage has a yet more extended application. No other means is so prompt in the relief of œdema, or for the removal of indurated thickenings, the result of chronic inflammations.

ART. III.—"*False Waters, or Hydrorrhœa.*" By D. MILLIKIN, M.D., of Hamilton, Ohio.

An error of diagnosis or of judgment may be forgiven the general practitioner in his medical and surgical practice, but not in his obstetrical work. In the lying-in chamber the one thing that is demanded of the accoucheur is infallibility. If the head lingers long at the inferior strait when the medical attendant has predicted a speedy termination of labor, or if a rigid os suddenly becomes soft when a tedious labor has been prognosticated, the parturient woman and her friends are inclined to doubt the intelligence or experience of the poor doctor who has been so rash as to risk his reputation on a statement which is justified by the law of averages, but does not fit extreme cases. This is very unreasonable. It is difficult to assure one's self beyond a doubt that a woman in labor is actually in labor; and it is dangerous to reputation to make predictions as to when or how delivery will take place. In illustration of the uncertainty of obstetrical practice I will narrate a case, which will also introduce our subject, hydrorrhœa.

At 9 P.M., January 26, 1876, I was called to attend a healthy blonde, of German parentage, in her sixth labor. Her history, which is too long to be narrated here, satisfied me that she was at the end of a pregnancy of nine months. For twenty hours previous to my visit she had suffered cutting pains, which for the last six hours had been quite frequent and sharp. An hour before my arrival "the waters broke." In response to questions, the woman told me that the fluid would have filled a large chamber-vessel brimful, and this was confirmed by other women present. I found the vagina prepared for labor. The uterus was felt to be stretched over the head of a fœtus, and that head was low in the pelvis. Searching backward, the examining digit found an os more than an inch in diameter, with soft margins. Until after some time I did not happen to examine at a time of uterine contraction, but I did not at any time find reason to doubt that the membranes had ruptured, nor that the liquor amnii had been evacuated. Near midnight the woman lost the use of her legs, and found difficulty in urinating. At this time a slight chill announced the completion of the first stage of labor. Finding that the head advanced and retreated freely in the pelvis, I gave fluid extract of ergot about two o'clock, the woman being very weak and impatient. Notwithstanding the administration of ergot in large doses for the next three hours, her pains ceased. After breakfast, on the 27th, I applied mustard-papers over the abdomen, without result. After dinner a very experienced obstetrician saw the case with me. He believed that labor at term had commenced, and recommended fifteen grains of sulphate of quinia to be given, in three doses, within an hour and a half, with a hope that this would arouse the uterus. Though the case really seemed a forceps case, we determined to delay operating, unless the woman should become exhausted. Toward night, hoping that she would fall into active labor after a good sleep, I gave her a moderate dose of morphine, and left a mixture containing hydrate of chloral in ten-grain doses. After the first dose she slept. On the 28th, 29th, and 30th she had but a few twinges of pain. On the 31st, being summoned on account of a few sharp pains, I found the head above the brim, and the os too small to admit one finger. That night she regained the use of her legs, and thereafter went about the house attending to her family of five. On February 26th I delivered this woman of a fine, plump, living boy, with the head in the position (left occipito-anterior) which I had diagnosed precisely one month before. Three or four hours before the delivery I found the membranes pouting from the os, and on rupturing them, an hour later, about the ordinary quantity of liquor amnii was evacuated. Not without a suspicion that I was doing a foolish thing, I carefully examined the placenta and membranes to find some explanation of the deluge which had occurred a month before delivery. I found no breach of continuity, except the rent through which the infant had passed, nor no sign of any damage to any part of the membranes. The placenta was retained for some little time, but was not adherent. The woman made a quick recovery.

It will, of course, be understood that I do not mention this case to boast of it; for the plain truth is that there was an error of diagnosis, and we made an attempt to bring about labor with drugs at the eighth month of pregnancy. I have mentioned it rather to call the attention of the profession to our ignorance of the source and cause of these false waters, and to ask for study of the obscure and somewhat rare phenomena of hydrorrhœa.

The great advances in pathological knowledge have been chiefly obtained by study of the commoner and more fatal maladies. An affection like this, comparatively rare and trivial, which does not destroy nor threaten life, is little studied. I do not know of the record of more than one *post mortem* examination of a woman with hydrorrhœa, and autopsies of such patients will never be frequent, since we must wait for a fatal accident or intercurrent malady. For this very reason, because we can hardly in a lifetime of medical practice hope to examine an ovum in the uterus of a woman subject to hydrorrhœa, it is important that we should examine every placenta and the membranes from women so affected. I do not doubt that some appearances would be found which, upon further study, would perhaps give us some scientific knowledge, in place of the scientific guesses which we have, as to the cause and origin of the false waters.

How widely the great obstetric authorities differ on these subjects may be seen at a glance. (1) Nægêle taught that the inner surface of the uterus secreted the fluid of hydrorrhœa, and that it collected between the membranes and the uterus, gradually separating the membranes from the uterus, until it reached the cervix and made an exit. (2) Others modified this theory slightly, asserting that the water transuded through the membranes and accumulated between them and the uterus. (3) Others, again, have maintained that the reservoir for the fluid is an interspace between the amnion and the chorion, and that the false waters escape by the laceration of the latter membrane alone, leaving the amniotic sac entire. (4) Mauriceau and Camper and others have asserted that hydrorrhœa is, in truth, a rupture of all the membranes and an escape of liquor amnii. Rupture, at such a time, does not completely drain the uterus and provoke abortion, because, as is asserted, the laceration is small and is situated at a point remote from the cervix. When a portion of the liquor amnii has escaped, the surface of the fœtus, according to this theory, reaches the uterine wall and closes the breach in the membranes.

To this latter doctrine I am inclined to yield my assent. It very well explains the intermittent character of most cases of hydrorrhœa, and also the fact that there is in some cases trickling of water for some months. It is, moreover, a theory supported by observation; for several careful observers, who have examined the placentæ of women subject to hydrorrhœa, report that, besides the large rent in the membranes through which the child passes, they have found other rents, higher up and nearer to the placenta, through which they believe the liquor amnii made its exit for weeks, and even months, before labor.

Little need be said of the diagnosis of hydrorrhœa. The discharge is not usually preceded by uterine contractions and pains. The diagnosis is easy, if it is found that the membranes are water-tight after the discharge, and pout forth from the os at a time of uterine contraction. In the case which I have given above, the flow was preceded by hours of pain, and I could not detect any fluid within the membranes. It was a case to deceive the elect.

The treatment of hydrorrhœa is almost entirely expectant. The patient should rest quietly in bed, lest the uterus should be excited to contraction. If contractions have commenced, the case is one of threatened abortion, and should be so treated.

Art. IV.—*Three Cases of Fracture of the Base of the Skull, with some Remarks upon the Symptoms.* By W. J. Conklin, M.D., of Dayton, Ohio, Professor of Physiology in Starling Medical College, Columbus, Ohio. Read before the Montgomery County Medical Society.

"Injuries of the head affecting the brain are difficult of distinction, doubtful in their character, treacherous in their course, and, for the most part, fatal in their results."—Guthrie.

The above aphorism, which introduces the distinguished surgeon's classical work on "Injuries of the Head affecting the Brain," very probably correctly represents the experience of every surgeon with injuries about the base of the skull.

The base of the skull, hidden and protected as it is by surrounding parts, is, to a large extent, removed from the sphere of the *finger*, that great diagnostician, to which we so confidently trust in deciding upon injuries to the vault.

The frequent occurrence and uniform fatality of fractures in this region, together with the unavoidable obscurity of the symptoms, have stimulated surgeons to seek after some special grouping of symptoms by which their presence can be certainly and speedily recognized. That this search has been only partially successful is evident to any one who may have occasion to consult the literature of the subject. Indeed, the ordinary text-books on surgery devote but little space to the discussion.

With the view of calling forth an expression of opinion from the members of this Society on the value of the symptoms usually detailed as diagnostic of a fractured base, I propose to present, this evening, brief histories of three cases which have come under my observation.

Case I. J. P., æt. 15, was knocked off his wagon by a stone. The stone struck him over the right parietal bone, causing quite an extensive scalp wound, which bled freely. In the fall he sustained other scalp wounds, but there was no external evidence of a fracture of the skull. He was wholly unconscious, but very restless, requiring restraint to keep him in bed. He bled freely from both ears, and slightly from the nose and mouth; internal strabismus of the right eye; pupils of both eyes largely dilated and insensible to light; pulse full, but very irregular; respiration irregular; frequent vomiting.

On the second day a profuse serous discharge replaced the hemorrhage from the ear. This discharge continued to flow freely, until the morning of the fifth day, when it ceased.

There are large ecchymoses under the palpebral and ocular conjunctivæ of the left eye. Patient still profoundly unconscious.

Died on the sixth day.

The post mortem examination revealed, in addition to extensive fractures of the base, a fracture of the left parietal bone.

However, the lesions pertinent to the present inquiry were, first, a fissure beginning above and behind the left ear, running along the anterior margin of the left petrous bone into the middle fossa of the skull. It then passed across the sphenoid, involving the right petrous bone, and was lost in the posterior fossa.

A second fracture, starting from the same point, extended downward and backward into the mastoid portion of the left temporal. The anterior margin of this triangular portion of bone, on the line of the first fracture, was depressed about one-fourth of an inch.

Notwithstanding the well-marked sub-conjunctival ecchymosis, careful search failed to show any fracture in the orbital plate of the frontal bone.

Case II. T. M., æt. 40, was struck upon the head by a brick falling from the third story of a building in which he was working.

Five hours after the injury he is unconscious, but very restless. Pulse regular, full, and hard; respiration intermittent. Blood is oozing freely from nose and mouth, but no discharge of blood or serum from the ear. The left eye is completely closed from swelling of the soft parts. There is also a large effusion beneath the ocular conjunctiva of the left eye.

Died in eight and a half hours.

The autopsy revealed, in addition to a comminuted fracture of the left parietal, a fissure running downward and backward into the middle fossa, and here joining a fissure running anteriorly into the orbital plate of the frontal bone.

A second fissure reaches from the point of injury, along the lateral sinus, to within one-half an inch of the foramen, and is here met by a transverse fracture which runs forward, and then inward, to the foramen magnum.

There are several fissures on both the anterior and posterior faces of the petrous portion of the temporal bone.

The two posterior clinoid processes, and the bone between them, are completely detached.

Case III. C. R., æt. 15, was injured by lumber falling from a car upon which he was climbing. His body was badly bruised in several places, but the severest hurts were about the head.

When seen, soon after the accident, he was wholly unconscious, collapsed, and bleeding freely from the nose, mouth, and ears, as well as from several scalp wounds.

Reaction came on slowly, and for several hours it was doubtful whether or not he would survive the immediate effects of the accident.

Forty-eight hours after the accident he did not recognize his parents, was very restless, talking incessantly about his horses, and was with difficulty prevented from getting out of bed. At times he would cry out with pain in his head. Pupils largely dilated, and responded very imperfectly to light; ocular conjunctiva was extensively ecchymosed; complete ptosis of the right eyelid; hearing evidently defective.

The bleeding from the nose and mouth has stopped, but the flow from both ears still continues profuse. Pulse full, but very irregular and intermittent, so much so as to prevent it being accurately counted.

On the third day the bleeding from the ears ceased, and was replaced by a copious discharge of serum. He was conscious when aroused, but continued dull and stupid the greater portion of the time. Complained of severe paroxysmal pains in his head and a loud roaring in the ears. Pulse still very irregular.

The discharge of serum from the left ear stopped on the fifth day, while the flow from the right ear continued more or less profuse until the tenth day.

He is troubled with double vision—complains that he sees two of every object around him. Two months after the accident he considered himself well. The right eyelid still drops, but the elevator muscles are gradually regaining their power. His hearing is still somewhat impaired.

Although in this case, fortunately for the patient, we are deprived of the only means of verifying the diagnosis, we have but little hesitancy in classifying it among fractures of the base, very probably involving the petrous portion of the temporal and the orbital plate of the frontal bone.

I do not propose, this evening, an exhaustive discussion of the symptoms pointing to a fracture of the base of the skull, but shall simply offer some remarks upon the value of the different symptoms.

It may seem unnecessary to call your attention to a fact which, although so plain, is apparently oftentimes ignored—that the symptoms in any case of fracture are almost wholly due to the injury sustained by the delicate intra-cranial organs. It is not the lesion in the bone that constitutes the essential feature, but the injury sustained by the brain and its membranes. We may thus have a fracture without any primary symptoms whatever, the patient dying at a longer or shorter period from the injury with some intercurrent brain disease. And thus we also readily understand why the symptoms in different fractures of the cranial bones should vary so largely.

The nature of the accident will often enable us to locate the lesion with tolerable accuracy. The experiments of Dr. Aran prove that a blow or fall upon the front part of the vault will point to the anterior fossa as the seat of fracture; upon the middle part of the vault to a lesion of the middle fossa; upon the back of the head to a fracture of the posterior fossa.

It has been pretty generally agreed upon by surgeons that the only reliable symptoms of a fractured base are the escape of some of the intra-cranial contents, blood, serum, or brain substance through one or more of the natural passages, and injury to the cranial nerves as they emerge from the skull.

The symptoms must of necessity vary with the extent and location of the injury.

For instance, take that most common and most reliable symptom, bleeding from the ear. In order that it shall be present, it is essential that there shall be a rupture of some intra-cranial vessel, probably a venous sinus, or the middle meningeal artery. There must be a fracture of the petrous bone, extending into the cavity of the tympanum, to permit its escape from the skull; and, finally, a rupture of the membrani tympani, to allow its appearance at the external meatus. With any of these conditions absent, bleeding of the ear can not be present.

Now, in point of fact, fractures of the base usually implicate the middle fossa, either alone or with the anterior and posterior fossæ, and an injury severe enough to cause the lesion in the bone is usually sufficient to cause the necessary injuries to the soft parts; hence bleeding from the ear is the common, but not essential, occurrence in a fractured base. Our second case wanted this symptom, and yet there were extensive fractures through the middle fossa. I believe the missing link here was the rupture of the tympanum, but my notes fail to throw any light upon it. The bleeding, to have much diagnostic value, must be tolerably free and continuous; a discharge, small in quantity and of short duration, can not be relied upon. If the blood filling the external ear pulsates, you have an additional proof of your diagnosis.

In an obscure injury of the head, if you satisfy yourself, which can always be done, that the tympanum is ruptured and yet the bleeding is very slight, you can with tolerable certainty throw out fracture through the petrous bone.

Bleeding from the nose and mouth, owing to the great vascularity of these parts, possesses but little diagnostic value, unless the flow is very profuse and continuous. Such bleeding, especially when uncomplicated with severe injury to the external parts themselves, points strongly to a fracture through the ethmoid and sphenoid bones.

Fracture through the middle, without implication of the anterior fossa, may also be attended with free hemorrhage from the nose and mouth when the membrani tympani is intact, the blood passing by way of the Eustachian tube into the nose and mouth. If the blood in the same way has passed into the stomach, the vomiting of blood may be present as a prominent symptom.

Hemorrhage into the ocular tissue of the orbit and eyelid is a very constant sign of a fracture in the anterior fossa. A fracture through the orbital plate of the frontal bone, owing to its intimate anatomical relations, may readily open a venous sinus or the ophthalmic artery, and thus cause free venous or arterial hemorrhage. As pointed out by Hewett, the rupture of the artery may result in the formation of a circumscribed traumatic aneurism, requiring the ligation of the common carotid for its cure. Effusion, however, under the ocular conjunctiva is the more frequent condition.

The effusion, too, has some characteristic features. In order that it shall have any diagnostic value, the ecchymosis must show itself primarily in the orbit, not in the eyelids. Again, the ecchymosis must extend in the cellular tissue of the orbit beyond our sight; if its boundaries are visible you can very certainly exclude fracture as the cause of the effusion. "Let us not forget the exact course which the blood must take if it comes from the back of the orbit, and bear in mind that we ought not to be able to trace the limits of this sub-conjunctival effusion; a few patches here and there are of no value."

This sub-conjunctival ecchymosis was well marked in all three of the cases we have detailed. Of the two fatal cases, but one, case two, however, showed the orbital fracture.

Let us next inquire into the claims of the so-called serous discharges to be a sign of value in the diagnosis of fractured base. A copious flow of serum, most often issuing from the ears, occasionally from the nose or a scalp wound, is by many authors considered sufficient in itself to determine the diagnosis.

It is certainly a valuable symptom, but like those already passed in review, it needs to be interpreted discreetly, or it will mislead us. The discussion as to the source and nature of this discharge has been one of the noted ones in surgery. Until its origin was settled, of course its diagnostic value must remain unsettled. It undoubtedly may come from three different sources:

1. From the interior of the skull, and is then the escape of the cerebro-spinal fluid.

2. From the membrane lining the cavity of the tympanum.

3. From the membrane lining the labyrinth.

You readily see, then, the different stories which may be told by this serous discharge from the ear. In the one case it tells with absolute certainty the presence of one of the gravest injuries; in the other case it tells merely of a temporary and slight trouble.

When the cerebro-spinal fluid escapes it is pathognomonic of a fractured base; but when you bear in mind that the line of fracture must extend across the meatus internus and communicate with the tympanum, that there must be a laceration of the sheath of the seventh pair of nerves within the meatus, and also a rupture of the membrana tympani, you readily see why this proof of the lesion in question should so frequently be absent. Let any one condition be absent, and though the fracture be extensive this symptom must necessarily be wanting.

The diagnostic value of a watery discharge from the ear exists alone in the quantity and the time of its occurrence.

Dr. Hewett, who has so thoroughly studied this subject, arranges the cases in which this system is present into three groups.

The first class comprises those cases in which a profuse watery discharge takes place immediately after the injury. He considers these as undoubted cases of fracture, the fissure through the petrous bone implicating the internal auditory canal and its membranes.

The second group represents those cases occurring more frequently than the former, in which a profuse and prolonged bleeding is followed by a copious watery discharge. These symptoms point very certainly to a fractured base, but the diagnosis rests upon the hemorrhage rather than upon the serous discharge.

The third class comprises those cases in which a slight hemorrhage is followed by a watery discharge, varying in quantity and the time of its appearance. Concerning this Dr. Hewett remarks: "This discharge may be present within a very few hours after the accident—it may be profuse within a very few hours after its appearance. These are the cases in which experience has of late proved that the diagnosis ought to be doubtful. The discharge of blood is not of a character to warrant the diagnosis of fracture of the petrous bone; and as to the watery discharge, it is now well known that such a discharge may occur within a few hours after the accident, that it may even be profuse, and yet there may be no fracture."

It is unnecessary to interrogate the evidence offered by serous discharges from the nose and from scalp wounds, as they involve no new principles.

In conclusion, I will merely call your attention to one other valuable aid to diagnosis: injury to the cranial nerves as they emerge from the skull. We would naturally expect to find these local nerve injuries more frequently than we do in fractured base The exemption probably arises from the fact that fractures here are not ordinarily attended with much, if any, displacement of the fragments. However, when present their testimony should be carefully weighed. They were present in two of our cases. In case one, the internal strabismus pointed to an injury of the sixth nerve, which passes out through the sphenoidal fissures, and the autopsy showed a fracture of the sphenoid.

In the third case the ptosis indicated injury to the third nerve, while the binocular vision rendered probable an injury to the optic nerve.

DAYTON, OHIO, April 15, 1876.

ART. V.—*A New Method of Treating the Pedicle in Ovariotomy, etc.* By A. DUNLAP, M.D., of Springfield, Ohio, Professor of Surgical Diseases of Women, Starling Medical College.

The interest that the medical profession has manifested in the operation of ovariotomy and the removal of fibroid tumors of the uterus, and the care with which they are studying the causes which lead to failure in these operations, induce me to propose the following plan of treating the pedicle and of securing drainage of the abdominal cavity after the operation. Evidently a large proportion of the deaths after ovariotomy result from the poisonous effects of the absorption of fluids in the abdominal cavity, or from the inflammatory action set up by their presence there.

Any plan, therefore, that will prevent their accumulating, or that will successfully remove them when present, will evidently be of interest to the profession and raise the percentage of cures in the operation.

In ovariotomy, after raising the tumor from its bed in the abdominal cavity and carrying it to one side, I would have an assistant grasp the pedicle, so as to control the circulation.

I would then cut through the sac, severing a greater portion of the tumor. The remaining portion of the sac may then be readily peeled out from the peritoneal covering, enucleating the tumor, after the plan of Minor, of Buffalo. The blood-vessels may now be singly secured, one arm of the ligature left long. I would now pass four or five long loops of silk thread through the edges of the cut peritonæum. In holding this up, you have a cup-shaped wound, whose bottom is resting upor the upper portion of the vagina, and is only separated from it by cellular tissue and the mucous membrane. A long and somewhat curved metallic speculum may now be passed into the vagina, and pressed up to one side of the uterus, against the bottom of the wound. A small wound through the tissues may readily be enlarged by the finger, so that the speculum will pass. I would now pass the long ligatures and loops of silk down through the speculum. By drawing upon the loops, the cut edges of the peritonæum may be made to pass into the speculum, and when well passed into the speculum may be withdrawn. Thus the pedicle is inverted, and the cut surfaces are closely adapted to each other and brought out by the side of the peritoneal cavity, and any discharge from them will have to pass down into the vagina.

To insure further drainage from the peritoneal cavity, of the secretions of that membrane, or of discharges from the wounded surfaces, made by breaking up adhesions, a long female catheter or silver canula may be passed down in the center of the inverted pedicle into the vagina. It should be long enough to reach the mouth of the vagina, so that it could be fastened and held to its place. A rubber tube can be slipped over it to carry away the discharges.

If this tube was made of a double canula, the abdominal cavity could thus be readily washed out by injecting lukewarm water through one canula, and letting it pass out through the other, in cases that required it.

In cases of fibroid tumors of the uterus that required an operation, the peritonæum would have been striped down in the same way from the tumor, and the base of the tumor severed by the écraseur. And if the wound did not open the uterine cavity, I would open it, and dilate the os and neck, introduce the speculum, and pass down through it any ligatures that may have been used, and the loops in the cut edges of the peritonæum, in the same manner as was described in inverting the pedicle in ovariotomy. Here, as before, the wounded surfaces are adapted closely together, and are left extra-peritoneal. If there is danger of the os contracting on the peritoneal pedicle and holding back the discharge from the cut surface, it could be readily incised, so as to prevent that from taking place.

A very free allowance must be made for contraction of the peritonæum, or you will find that you have got your pedicle too short to pass into the vagina.

Art. VI.—*Corneal Opacities.* By T. D. Davis, M.D., Dayton, Ohio.

Among the uninformed laity cataract and corneal opacity are synonymous. Many eyes are lost by delaying treatment of a supposed cataract, when the disease is a serpiginous ulcer of the cornea. A mother lately brought to me her daughter, with a large corneal ulcer, but at first was unwilling to have it treated, because a "charmer" had told her it was a cataract, and she must wait until it was "ripe" before it could be taken off. To your readers a review of the subject may not prove entirely uninteresting nor uninstructive. To the specialist it is fraught with deep interest, as he is consulted for no disease more frequently, none baffles his skill more, nor none occasionally yields more brilliant results.

The writers of a few years since divided all opacities into nebula, albugo, and leucoma, according to their density. As the meaning of the latter two words is exactly the same, they are now used synonymously. Wells adheres to this division, but Stellwag separates them into no less than eight classes. I will consider them under three groups, corresponding to their cause: (1) inflammatory, (2) constitutional, (3) crustaceous.

The cornea, although of such thinness and transparency, is a most wonderfully formed membrane, and a knowledge of its minute anatomy is essential to the rational treatment of its morbid conditions. It may be divided from without inwards into its (1) conjunctival epithelium, (2) Bowman's membrane, (3) parenchyma, (4) membrane of Descemet. The epithelium is composed of three layers—the anterior pavement, the posterior cylindrical, and the middle a mixed form. Between these layers circulate minute cells, constantly changing position and size, their transmutations rivaling the kaleidoscope. Bowman's membrane is a condensation of the fibrillæ proper, which, agglutinated by an adhesive material, is formed into a very thin and transparent, yet firm and elastic structure. The true substance of the cornea is composed of fibrillæ compressed into upwards of sixty lamellæ, which are interwoven. Between these are fusiform, round, and flat cells, and a glutinous-like material. Beside the fixed cells are numerous small cells, which wander around, pressing their way among the fibrillæ and jelly-like cement. These I conceive are nutrient cells. They resemble lymph corpuscles, and are certainly instrumental in replacing destroyed corneal tissue. The membrane of Descemet or Demours is very similar to that of Bowman. It is lined on the inner side with polygonal epithelium, and forms part of the capsule of the aqueous humor. No blood-vessels permeate the normal cornea after fœtal life, except, perhaps, at its extreme borders.

1. In considering the inflammatory forms of corneal opacities, it will simplify the subject to divide them into (*a*) epithelial, (*b*) parenchymatous, and (*c*) internal.

The most prominent of the external or epithelial variety (*a*) is pannus. This condition is characterized by vascular injection of the cornea, and receives its name from its fancied resemblance to a (red) cloth. It is the result of inflammation, and is due to a neoplastic layer of cells under the epithelium, and even occasionally under Bowman's membrane. These cells may develop into connective tissue and become interspersed with blood-vessels. This condition is frequently confounded with inflammation of the cornea (keratitis), but it should be carefully distinguished from it, for in the inflammation the vital action is too high, while in pannus it is too sluggish. It is most frequently caused by granular lids, external irritants, inverted cilia, or traumatic influences. During the acute inflammation the conjunctiva is greatly conjested, there is profuse lachrymation and great photophobia, but these pass away, leaving only the injected vessels and clouded cornea. As to a permanent cure, much depends on its recent origin, cause, and depth. In a case sent to me by my friend, Dr. J. C. Reeve, of this city, the cause was the irritating alkaline dust of the western plains. So thick and numerous were the vessels that the patient could scarcely discern daylight through them, nor could the iris be seen. Here the prognosis was grave, but, beyond my hopes, the eye has been restored to perfect vision.

Perhaps the most frequent cause of external opacities is phlyctenular keratitis. This is a distinctly bounded cone-shaped inflammation. The base of the cone, a line or less in diameter, is in the epithelium, the apex extending into Bowman's membrane. Fluid collecting in this cavity, the epithelium is pushed forward, forming a vesicle, or the vesicle rupturing a round, depressed ulcer, very regular in its outlines, remains. Under rest and proper treatment this rapidly heals by the accumulation of a mass of formative cells at the periphery, which soon change into epithelium.

The deep layers of this new formation may be perfectly transparent, but too often the superficial layers are cloudy.

There is an opacity that is due to a change in the epithelium itself. The cells become thickened and adhesive, having also undergone fatty degeneration. It is caused chiefly by slight attacks of keratitis. To the patient it is quite annoying, and yet to detect it requires considerable skill. It can, however, be readily diagnosed by the oblique illumination, or from want of luster in certain parts of the cornea, or from roughness of surface, as seen by examining with a lens.

Opacities of the parenchyma proper (*b*) are, of course, the most numerous, and by far the most difficult to remedy. Their name is legion. They may be caused by every variety of corneal inflammation or ulceration. Frequently the normal corneal tissue is destroyed, and nothing but firm, opaque, tendinous cicatrices remain, or there may be a grumous substance between the lamellæ, rendered opaque by contracted nuclei and fat cells. The corneal cells are swollen, and there is a fatty degeneration of the intercellular substance. Inflammatory deposits are chiefly exuded white blood corpuscles from the terminal loops of the scleral vessels and those of the conjunctiva that border on the cornea. Most lacerations of the cornea result in opacities from the attending inflammation. In the case of a stone-cutter, kindly sent to me by Dr. J. S. Beck, a piece of steel from his chisel had penetrated the cornea, lacerating it considerably. The consequent inflammation had generated pus, which had infiltrated the lamellæ over two-thirds of the cornea (onyxa). By evacuating the pus and instituting gentle pressure the opacity was reduced to less than a line in diameter, and even this is continuing to disappear.

The opacities following operations would come under this head, although clean cuts or punctures rarely leave any.

Small opacities are met on the posterior surface of the cornea (*a*), due to inflammatory changes in the internal epithelium They mostly are arranged in the form of a pyramid, with the base downwards, and are due to a precipitation of lymph (Wells). They are concomitants of inflammations of the internal coats of the globe and of iritis, or the result of aquo-capsulitis (Mackenzie).

2. Of the opacities resulting from or modified by constitutional taint, there is a peculiar form caused by intra-ocular pressure, as in glaucoma, but they become insignificant in the presence of the graver disease. Of more importance are those caused by the peculiar disease so ably described by Sœlberg Wells, under the contradictory title of Non-inflammatory Suppurative Corneitis. While the true lesion may be inflammatory, yet the symptoms are so radically different from acute inflammation that it should be classed under this head. There is a complete absence of photophobia, ciliary neuralgia, irritation, lachrymation, or congestion. Suddenly there may appear an opacity of yellow color and sharp, defined edges; rings of yellow color are rapidly formed around this spot, the tissue of the cornea disintegrates, fatty degeneration takes place, pus cells are formed, and an abscess ensues which reaches great depth, even to perforation, but it is more inclined to extend in circumference than in depth. A favorable change occurs when there are symptoms of an acute inflammation set up, which may limit the march of the disease, and cause the necrosed cornea to slough and new tissue to form; more or less opacity is left. There are leucoma caused by paralysis of the fifth nerve, the irritation to the eye in exophthalmic goitre, in xerophthalmia, and other diseases to which we will not advert.

The so-called scrofulous keratitis described by Dixon we place here. This disease is much more common than is generally supposed; indeed, as the origin of acute opacities I place it next in frequency to the one presently to be described. The chief symptom is extreme intolerance to light, with an absence of congestion, or apparent cause of the irritation.

Soon, however, there is a small white speck or pustule formed in the cornea, to which extends a beam of blood-vessels from the now slightly injected edge of the cornea. It is exceedingly difficult to cure on account of the tendency to relapse, and I have never found any benefit from external applications until the patient was put under an anti-strumous régimé. But the most aggravating form of all is that of phlyctenulæ, found in scrofulous children. It has many symptoms in common with the form just described, but lacks the extreme photophobia. It is most like the regular herpes of the cornea, with which its anatomy is identical, except that the vesicle never forms, but only the opaque nodule, and it is invariably surrounded with patches of clouded tissue. I have under my care now a little girl, sent to me from Indiana, who presents a typical case. When I first saw her she had to be led by the hand, and could not see my face. Her eyes were not at all irritable, but both corneæ were densely clouded, with here and there small, thick, opaque spots. The conjunctiva was not injected, but there was considerable lachrymation. Under constitutional treatment and local applications calculated to induce slight inflammation, the opacities, although of four years' duration, have gradually disappeared, but only after very frequent and discouraging relapses. She now sees to walk to my office, and can read large type, but every few days a new spot appears as a center from which a halo is shed, but these are growing less frequent and smaller, and I hope for an ultimate cure. Several other cases now under my care present a similar history. I only get the opacities removed to have them return like clouds in a summer sky.

3. The crustaceous form may follow any of the inflammations mentioned, but they are very rare. They may consist of chalky deposits—phosphates and carbonates of lime, cholestrine crystals, and even bony deposits have been found after death. The most common form is that of metallic in-

crustations, the result of the injudicious use of metallic salts in collyria. This is especially true of acetate of lead, and under no circumstance should it ever be used where there is the slightest abrasion of the cornea. This can not be emphasized too strongly, as sugar of lead is the panacea for eye troubles in many households.

The prognosis is generally favorable in recent cases, or where the cause has been simple inflammation; those resulting from ulcers are much less inclined to clear up. Where the opacity has become tendinous, cicatricial, or calcareous, we can promise but little. For those modified by scrofulous taint, much is to be hoped. In children gratifying results are obtained in almost all varieties, the natural growth of the cornea apparently displacing the diseased tissue.

In epithelial opacities cures take place by the absorption of the neoplasm and the exfoliation of the diseased epithelium, which is replaced by transparent cells. In the parenchymatous the interlamellar cells are absorbed, or there may be a higher formation of regenerated corneal layers. Therefore the rationale of our treatment is to hasten these ends. Many and various are the remedies offered, from eel's-liver oil and viper fat to pounded glass and desiccated clay; but the whole mass from which any benefit can be expected, by external application, may be divided into irritants and antiphlogistics. The former excite hyperæmia of the parts, increase the interchange of material, or accelerate and stimulate the process of absorption. The latter are calculated to subdue existing inflammations and soothe the irritated membranes. We believe there is no specific virtue in any remedy, and only those that can be classed under these heads are worthy of consideration. The plan of treatment is therefore exceedingly simple, and is not based on the virtue of a remedy, but upon our knowledge of how it acts. How utterly improper it would be in cases at the height of the inflammation to add irritants and warm fomentations, or in those sluggish, non-inflammatory forms to apply astringents and cold applications. It is necessary to select a few applications, and become perfectly familiar with their action, if we hope for success. As the eye in time becomes indifferent to a remedy used exclusively, it is best to be familiar with two or three in each class, but more than these only tend to confuse. My favorite local remedies are, among the anti-phlogistics, depletion, astringents, and rest. The first by abstraction of blood from the temples with the artificial leech, or occasionally by scarification of the lids, but never of the ocular conjunctiva. Second, cold applications and solutions of tannic acid, varying in strength up to saturation, according to the degree of inflammation, and, of course, atropine. Third, rest, by means of a bias flannel bandage bound gently round the eye, the depressions being filled with jewelers' cotton. I have rarely found use for any other remedies in the inflammatory stage of opacities.

As irritants, calomel, dusted into the eye, stands first. Care, however, should be taken in its use, where there are any abrasions of the cornea or phlyctenular ulcers, to keep it from lodging in them, for, by the action of the tears, it may be converted into the corosive chloride, thus actually cauterizing and doing great damage. Yellow oxide of mercury—one to five grains to the drachm of fresh, unsalted butter, lard, or simple cerate—is an excellent preparation. One of the best vehicles for the administration of irritants, or, in fact, any medicament, to the eye, is a mixture of one part of glycerine to four of starch. By heating the glycering and adding the starch it attains the consistency of ointment, and has the great virtue of not becoming rancid. The glycerine should be perfectly pure, or otherwise it contains severe irritating qualities. As it dissolves readily in the tears, it should not be medicated as strongly as an ointment. A weak solution of sulphate of cadmium in wine of opium is regular in its action. Finely powdered sulphate of soda, dusted on the cornea, may take the place of calomel, but has no advantage over it. The sub-conjunctival injection of a solution of common salt—twenty grains to an ounce of water—every three or four weeks, is claimed by Rothmund to have great efficacy.

In all cases, therefore, of opacities attended with high inflammatory action, the first thing to be done is to reduce the inflammation, but not cut it too short, for then the abnormal blood-vessels would simply contract and remain as opaque deposits. When the inflammation has entirely subsided, we must create irritation enough to cause absorption to take place, and this can readily be accomplished by the judicious use of the remedies mentioned, being careful not to excite too much irritation, and thereby do more harm than good. We will be greatly aided in this by remembering that a less degree of irritation is required in the epithelial varieties than in those seated deeper. In those cases classed as constitutional, internal treatment is absolutely necessary, especially the administration of iron. A favorite preparation, on account of its efficacy and pleasant taste, is the tincture ferri pomatæ of the Prussian Pharmacopœia. Our own syrup of the iodide of iron is also good. Cod-liver oil may also be necessary, with a strict attention to all the general rules laid down in the treatment of strumous diseases.

In the crustaceous forms, especially if the cicatrices be tendinous, but little can be done, although some very interesting cases have been reported where the deposits have been removed by operation. In the densely opaque forms of long standing, if possible, an artificial pupil should be made at the side of the opacity. I mention, simply to show the device and daring of some as a *dernier resort*, the establishing of a small fistulous opening in the center of the cornea, thus allowing a few rays of light to penetrate the darkened chamber. Nausbaum endeavored to insert a crystal cornea, and it has even been attempted to transplant cornea from animals, which, of course, has proved worse than useless. In hopeless cases the appearance may be greatly improved by tattooing the opacity, making it to resemble somewhat the normal eye.

ORIGINAL LECTURES.

ART. VII.—*On the Legal Responsibilities of Medical Men.* Lectures Delivered in the University Medical College, New York. By STEPHEN SMITH, M.D., Surgeon to Bellevue Hospital, New York.

Upon engaging in the active duties of your profession, certain reciprocal relations are established between you and the community in which you reside, which have the sanction and force of law. These relations it is important that every practitioner should thoroughly understand at the outset, in order to the performance of his duties within those limits, which will protect him from future harm and annoyance. Some of these more important relations I propose to consider in this and the following lecture.

On receiving your diploma, you will naturally inquire as to its value. In this and many other States it is not, before the law, worth the material on which it is written. It confers no privileges, no rank, no honors. It does not elevate you above the neighboring blacksmith or watchmaker. They stand on the same footing with you, as regards the rights, duties, and responsibilities of your own profession. They may any day be your rivals in practice, though they have never opened a medical book. Your neighbor, the blacksmith, has but to prefix the title "Doctor" to his name on his door, to place himself on the same legal professional footing as yourself; so that, before the law, you have gained nothing by years of study and effort to obtain a diploma. If, however, you are summoned into court to answer to the charge of malpractice, your diploma will be received as *prima facie* evidence of your skill. But even then you will derive little advantage from your diploma, for the court will hold you to a higher grade of responsibility, simply because you give this proof of your qualifications.

Your first act, after selecting a place of settlement, will be "to put out your shingle." This is ordinarily a very simple and pleasant duty, and yet, viewed in its proper light, it is an act of momentous importance. You thereby enter into a solemn covenant with the people among whom you propose to practice. Though this contract is implied, it is nevertheless as valid as if it were reduced to writing, and signed, sealed, and delivered in the presence of a witness. For what does your "shingle" announce to community? Plainly, you intend to have it understood, *first, that you are prepared to attend upon the sick; second, that you are qualified to treat their diseases with ordinary skill; third, that you will exercise proper diligence and care; fourth, that you will practice according to the tenets of the school to which you belong.* That the people put this construction upon the act is proved by the first call that is made, and by the subsequent suits for malpractice which they institute for alleged want of skill or negligence, or both.

Let us analyze this contract. 1. You engage to attend upon the sick on call. Must you go at every call? No; you may refuse to attend any sick person when first summoned. You are in the position of an artisan, who may accept or decline work at will. But, having accepted the call, your obligations are of the most imperative kind, and continue, unless interrupted, to the termination of the case. There are two ways by which you may withdraw from a case which you have undertaken: First, the patient may discharge you peremptorily, and at any time; you have no alternative but to retire from the case; he is the employer, and can terminate the engagement at any moment. Second, you may withdraw after having given the patient timely notice of your intention; you must fix the time so far in advance as to give the patient ample opportunity to secure the services of another medical attendant.

2. Your "sign" advertises the community that you are qualified to treat the sick; in other words, you contract to bring to the discharge of your duties the requisite knowledge and skill. What degree of knowledge and skill does the law require? It "does not require the possession of the highest, or even the average, skill, knowledge, or experience, but only such as will enable them [physicians] to treat the case understandingly and safely." This rule, properly construed, is a very just one. You are required to have that knowledge and skill essential to treat each case understandingly. The exact measure of this knowledge and skill can not be fixed, but the law recognizes the fact that it will vary with each case, and that it rises in proportion to the gravity and complexity of the disease. The courts have very judiciously discriminated in determining the question of knowledge and skill, as follows: First, the surgeon "does not undertake that he will perform a cure;" second, "he does not undertake to use the highest possible degree of skill, as there may be persons of higher education and greater advantages than himself"; third, "he undertakes to bring a fair, reasonable, and competent degree of skill." It may be alleged that, under such a decision, the surgeon may plead his ignorance of more recent improvements in practice. But each case will be decided upon its merits. A surgeon in Alaska might escape under such a plea, while the surgeon of New York would be held responsible for not obtaining such knowledge which was within his power. "Medicine," says a learned jurist, "is a progressive rather than an exact science." "The standard of medical qualification," says another legal writer, "is on the advance." And in a recent case, where the defense of the surgeon was that the disease was rare, the court held that he should have been familiar with the few recorded

examples, in the following remarkable language: "These rare and isolated cases have been recorded as lights to the profession, admonishing the surgeon to use greater care, and, instead of excusing, go far to implicate the defendant; for, if he has not read the books, he is guilty." In advertising yourself, therefore, as qualified to treat the sick with proper skill, you contract to apply the current knowledge of the present time. "The standard of ordinary skill," says a standard author, "which is required of every physician and surgeon, it will be borne in mind, is that degree and amount of knowledge and science which the leading authorities have pronounced as the result of their researches and experience up to the time, or within a reasonable time before the issue or question to be determined is made. It is not enough for a surgeon to plead that his treatment was that taught him by the ablest members of the profession and the best schools twenty-five years ago. * * * An amputation that would have been justified by the rules of surgery, and the operator protected in court, twenty-five years ago, or even within less time than that, would now be repudiated by the best authority, and the operator justly chargeable with ignorance and unskillfulness."

It is evident that this part of your implied contract, under recent decisions of courts, is of no slight importance as regards your qualifications to treat the sick. You are not only to be well-grounded in the principles and practice of the art, but you bind yourself to maintain a practical familiarity with all its latest improvements. You must, therefore, ever after be a student, and avail yourself of every practicable means of information as to the progress of discovery in all branches of the medical sciences. You can not rely upon your old text-books as guides, but you must study the recent works, and, above all, read the current medical journals, which contain all the more recent information.

But this is not all. You contract not only to exercise ordinary skill, but you "are also bound always to use your best skill and judgment in determining the nature of the malady and the best mode of treatment, and in all respects to do your best to secure a perfect restoration of your patients to health and soundness." If you have extraordinary skill in practice in any branch, you are obliged to exercise that skill to the full extent. Even if you profess special skill, you are held responsible for your failure to exhibit it. A legal expert thus states the rule: "Wherever great and extraordinary skill is possessed by an individual, causing his employment exclusively on that account, there can be no doubt of his obligation to bestow it to the full measure of his ability, since the exceptional degree of that skill is the moving consideration to his employment, and its recognition is expressed in the superior charges for services, which he is both expected and justified in making."

[TO BE CONTINUED.]

ART. VIII.—*A Lecture on Posture.* Delivered before the Pupils of the School for Nurses, Charity Hospital, B. I., February 13, 1876. By WILLIAM M. CHAMBERLAIN, M.D., Visiting Surgeon to Charity Hospital.

The signs of disease are classified as rational and physical. The rational signs are those which we learn by the report of the patient; the physical, those which we perceive by our own senses. The first are matters of testimony, the second matters of observation. We believe what we see more constantly and more entirely than what we are told. Disturbances of the bodily health are generally attended by more or less disturbance of the mind. Fear and hope, and conceit, and vanity, and petulance, and desire for sympathy, and indifference, and stupor, all disturb the truthfulness of the mind, make the patient misconceive his own condition and misrepresent in his account of it. It is a significant fact that certain chronic diseases are called, sometimes, "liver *complaint,*" "kidney *complaint,*" etc., as if the most characteristic feature of the case were the habit of telling all sorts of querulous stories about them. The physician knows so well that the sound mind does not inhabit the sick body, that he will not have charge of his own case when he is ill. If it be true, as the proverb says, "that the man who pleads his own cause in court has a fool for a client," quite as true is it that he who is his own physician leans on very unsafe counsel.

It is not so with physical signs; they tell the truth every time; they are positive, and, rightly interpreted, can not mislead. Hence we seek to find as many of them as we can, and read in them the real natural history of disease. We weigh, measure, count, analyze, test, auscult, percuss, study alterations in form, color, texture, temperature, and try to find the reasons of every thing we see.

In this spirit let us for a little consider the relations of posture to disease, both in its study and its treatment; meaning by posture, the positions of the body and its parts, and modes of movement. A large book might be written on the subject. I can only touch it at a few points.

BRAIN DISEASE.

During the rainy weather of last August, I was on duty in the obstetric wards. We lost three new-born children by tetanus, which is apt to prevail in warm, moist seasons, and island climates. Those of you who saw those little patients, lying on the bed with fly-nets over them, will remember how peculiar were their attitudes—the head drawn back between the shoulders, the limbs bent and rigid, the thumbs shut into the closed palm, the feet drawn up, and the toes rolled under. These facts of posture were much more significant marks of the disease than any which could have been found in the pulse, the temperature, or the secretions. They are the signs of irritation of the spinal cord, particularly of its anterior columns, whence issue the nerves which control the muscles all over the body. You will see more or less of these signs in all diseases which consist essentially in congestion or irritation of the membranes which envelop the spinal cord or the brain, which, you know, is but an expansion of the spinal cord, a sort of bulb blown upon its upper end.

These membranes are called the meninges; hence we have the term meningitis, or inflammation of the meninges, in its varieties of simple and tubercular meningitis (called, also, hydrocephalus—water on the brain), and endemic cerebro-spinal meningitis, in all of which muscular rigidity and the retracted head are among the early symptoms. Coupled with these are the uneasy movements of the head, boring into the pillow, and rubbing of the occiput, often until the hair is worn off by friction.

If you put your hand beneath the neck you will find the splenii or extensor muscles of the head no longer lie in their place along the natural curve of the spine, but are raised out of their bed, and are stiff and shortened. This disturbance of the nerves of motion causing general muscular spasm, makes more apparent the disproportion between antagonist muscles, the more developed muscle overpowering that which is less developed, and as the flexor group of muscles are generally more powerful than the extensor, the body comes, as the disease advances, to assume a position of general flexion, the thighs bent on the pelvis, the legs on the thighs, the elbows bent, and ths arms pressed against the chest. And this is what the French call the *chien de fusil*, or gunhammer position. Whenever you see these peculiarities of posture you may know there is trouble with the mambranes of the cord—irritation of its motor columns. It is thus we interpret what we see in hydrophobia, strychnine poisoning, and the first stages of anæsthesia by ether and chloroform. When the irritation has continued to the stage of exhaustion, paralysis takes the place of spasm, the contracted muscles relax, the position on the side is exchanged for the supine, the patient slides down in bed, and we know that if the causes still continue life will soon end. I have said that the retracted head is a sign of meningeal irritation, but I must make one exception. It is in croup and diphtheria, in the later stages of which the head is thrown back in order to stretch the muscles which pull apart the sides of the larynx, and to straighten the trachea, so as to allow the passage of a larger volume of air. Here the livid face, the muffled voice, and the sonorous breathing tell you that it is the throat, and not the brain, which is the seat of disease.

ORTHOPNEA.

Here and there in the medical wards of the hospital you will see patients sitting, propped up with back-rests, in bed, unable to lie down. This we call orthopnea, or the erect position, assumed for ease in breathing. Now, this position does not belong to all forms of thoracic disease. The average patient with phthisis, pneumonia, or valvular disease of the heart, can breathe tolerably lying down. But there are three conditions known to me which usually cause this orthopnea. The first is, the presence of fluid in the bronchial tubes, in the air cells, or in the cavity of abscesses. Fluids will always gravitate to the lowest level they can find. In the horizontal position of the body, fluid in the bronchial tubes will suffuse a much larger portion of the lungs than in the erect. Suppose my four fingers, held thus, perpendicular to this table, are so many bronchial tubes partly filled with fluid; that fluid will settle to the last joints, the terminal portions of the bronchial tubes; but if I lay my hand down thus, on the back, the fluid will flow along the whole length of the tubes. Supposing the fluid is in the cavity of an abscess or tubercular excavation, in the erect position it will settle to the bottom of that cavity, and there remain; but, in the recumbent position, it will flow out of the cavity into the bronchial tubes, and excite the spasm which we call cough. Ask these patients why they sit up, and they will tell you they can not lie down without coughing.

The diseases in which the lungs are thus charged with an excess of fluid are the suppurative stage of consumption, bronchitis with profuse secretion, senile catarrh, and œdema of the lungs, when the substance is so filled that it transudes into the bronchial tubes. When, from disease of liver, heart, or kidneys, there is dropsical effusion all over the body, there is usually more or less œdema or dropsy of the lung also; but it does not ordinarily produce orthopnea until the fluid finds its way into the bronchial tubes. There may be a great deal of fluid in the cavity of the pleura without producing this symptom of orthopnea. Patients whose chests, outside of the lung, are half filled with fluid, will often lie down and remain quietly, generally on the side affected.

Another cause of orthopnea exists in connection with some diseases of the heart. You know that the aorta, the pulmonary artery, the venae cavae, the great vessels which carry the blood to and from the heart, are found at its upper and posterior portion. When the body is erect the weight of the heart falls in the general direction of the axis of these vessels, and tends to keep them open, and favors an unobstructed flow of blood in and out. When the heart is normal in size and weight, the elastic tissues in which it is enveloped have sufficient firmness to keep it where it belongs. But when the weight of the heart is doubled by fluid effusion into the pericardium, or by overgrowth of its tissue, then, in the recumbent position, the heavy heart sags backward, perpendicular to the axis of the great vessels, and thus bends them and diminishes their caliber, and therefore their power to transmit blood back and forth.

You may see a case in ward five of dilated and hypertrophied heart, in which I account for orthopnea on the foregoing theory. Another cause of orthopnea exists in asthma and emphysema, in which the lungs are temporarily or permanently overfilled with air, which can not escape on account of the contracted condition of the bronchial tubes. Now, the residual air remaining in these dilated air cells does not answer the purpose of *fresh* air, which must still be inhaled. To further expand a chest which is already overexpanded, it is necessary to call in the aid of other muscles; the patient sits up, takes hold of some support above his head, the head-board of the bed or a swinging-bar, or rests his elbows on a high table, in order that he may lift up the shoulder-blades and collar-bones in such a way as to pull up the ribs and make more air space in the chest. It is by such forced inspiration that he brings up arrears when the ordinary breathing is insufficient. When we have been sitting still for a long time, we instinctively get up and stretch our arms upward and backward, and thus, by aid of the voluntary muscles, fill the chest to the utmost.

This we call yawning. When we have been under the influence of absorbing thought or depressing emotion for some time, respiration becomes less and less complete, until we have to draw a long breath to compensate for many short ones. This we call a sigh. The sigh and the yawn consist, then, in a call upon the voluntary muscles to supplement the involuntary in procuring a free respiration; and this is just what the emphysematous and asthmatic do when they raise their arms and shoulders.

When the malarial poison has occupied the body, the little capillary blood-vessels contract and fail of their proper circulation, the skin becomes dusky and wrinkled, the fibrous tissues around the joints in pain cry out for more blood, the muscles of the chest fail to expand it, and the subject is compelled to yawn, and stretch, and shake, that is, to do a number of things by the aid of the dynamic muscles, which, in the healthy body, are done by the organic.

SUSPENDED ANIMATION.

Now, this power to make one set of muscles do the work of another has much to do with the treatment of cases of suspended animation (one form of which you will see much of, and will be expected to be able to manage); therefore I shall take this occasion to enlarge upon it. I mean still-born infants.

The unborn infant receives its supply of oxygen through the blood of the mother. So soon as the placenta is detached from the interior of the womb, or the cord which connects the child to the placenta is divided, the child can no longer breathe with its mother's lungs, but has to employ its own. Up to the moment of birth, the child has been standing on its head in a bag of warm water at a temperature of ninety-eight degrees. At the moment of birth, by the rupture of the membranes, the child is launched into the world. All the nerves of the skin receive a sharp impression from this sudden change, from warm water to cold air, and this impression is reflected upon the nerves of sensation through the brain and cord to the nerves of motion; the diaphragm and chest are excited to action, the ribs rise, the chest enlarges, and air rushes into the lungs.

Thus the mechanism which nature employs to excite respiration is the sudden transit from warm to cold, from wet to dry; and when this mechanism fails of its full effect we imitate nature by plunging the infant into quite warm water for a few seconds, and then swinging him aloft through the cool air, or we dip him alternately for a few seconds, first into warm and then into cool water. The strong impression on the nerves of the skin is that which we seek, but it is not, as I think, a matter of indifference in what order we employ heat and cold.

The heat should come *first*, for heat is a direct stimulant, and cold is primarily a depressant, and always so when there is not a reaction from it. This reaction belongs to a skin which is warm and full of blood, and it does *not* belong to a cool and livid surface. The spray of ice-water is positively grateful to the man who leaves with a reeking skin the hot chambers of the Turkish bath, but it is the most horrible punishment to the already chilled convict, brought from his cell in prison to be placed in the disciplinary shower-bath; so horrible is it that I am glad to say it is no longer used in most prisons.

For the same purpose of irritating the cutaneous nerves, a light but smart slap with the broad hand is given to the infant, and is sometimes sufficient to rouse an act of respiration.

I have little faith in any effort to inflate the lungs by breathing into them through the infant's mouth, but it may have often led to a more important act, namely, wiping out the mouth to free it from viscid mucus, which is sometimes found to occupy it. It is good practice, if the breathless child seems to be large and lusty, to let the cord bleed before tying it. Not more than a tablespoonful need escape, but even this little will make a movement which extends to the remotest capillary, and sometimes seems to relieve a congested medulla oblongata, which is the center of the respiratory nerves.

By this means you will generally excite the act of breathing, and it will ordinarily grow stronger and more perfect without further interference on your part. But sometimes it is not so. The breathing *may* grow shorter and more feeble, and something must be done to maintain and enlarge it.

For this purpose we have several methods. In the first, named after its author, Dr. Silvester, the hands are first stretched down, palm to palm, and then carried up in a half circle until they are extended to their full length above the head, thus mechanically lifting the thorax and distending it. This is done about fifteen to twenty times a minute, in imitation of the frequency of natural respiration; and thus by the agency of the arms the ribs are lifted and the cavity of the chest enlarged. To fill this enlarged space the lungs expand, and air is drawn inward through the trachea and bronchi. When the arms are lowered the chest contracts and the air is expelled, but the object has been gained. The blood has taken up oxygen and surrendered carbonic acid; one degree of aeration has been secured. Second, that of Marshall Hall, which consists in slowly rolling the body of the infant from the supine position to the prone, and back again, at the rate of fifteen to twenty times in a minute. Third, that of Schulze, in which the child is supported by the forefingers in the axillæ, and the body of the child is made to swing backward and forward in such a way as alternately to flex and extend the lower extremities, and thus expand and contract the chest. To these I would like to add another proceeding, which is to place the left hand beneath the buttocks of the child, and the right beneath the occiput and neck, and to raise and lower the trunk to the sitting and the lying posture. As the back curves forward, the ribs sink and collapse, the intercostal spaces are closed, the liver rises beneath the diaphragm, pressed upward by the contents of the abdomen, and the space for the lungs is reduced to a minimum. The act of *expiration* coincides with this movement. When the reverse movement is made, the ribs rise and separate, the intercostal spaces widen, the diaphragm and liver descend together, and the open space of the chest is greatly enlarged. This makes an act of *inspiration* necessary. You may verify these statements by stooping forward without bending the knees. Letting the hands fall toward the feet, you will find that you naturally expire in so doing; and when, on the other hand, you straighten upward and backward, you as naturally draw in the breath. I can not say that I have often employed this manner, but will ask you to try it, because, according to my idea, it has all the advantage offered by the others, and it is a much more quiet and comfortable proceeding for the child.

REST.

You go to bed when you are sick. Why? Instinct compels you to it, in order that you may have the advantage of that means of cure which is more powerful than any other, and often more powerful than all others.

Are the lungs affected? Rest in bed slows the rate of the heart, which is all the time pumping blood into them, and slows the rate of respiration, which is all the time heating the blood in them by the oxydation of the blood in the air-cells. In a doubtful case of pneumonia, the more absolutely still you can keep patients the better. I tell the house staff not to make them sit up for auscultation and percussion, or any other examination. Are the joints affected, as in acute rheumatism? Rest in bed stops the grinding of one swollen surface on the other—stops the twitching of the muscles at the ligaments which invest them. I might go on adducing illustrations, the truth of which you would at once recognize, but I may state the idea generally by saying: Rest, in the recumbent posture, restrains all the destructive forces, and relieves the embarrassment of all the forces of repair.

GRAVITATION.

The law of gravitation—that is to say, the fact that weight of all kinds tends toward the lowest attainable point—has an important relation to the care and cure of the sick. If any organ be unnaturally heavy, either from hypertrophy, which is over-growth of its texture, or congestion, which is an over-supply of blood, or œdema, which is a dropsical effusion of fluid into its substance, it will drag or settle in such a way as not only to disturb its own functions, but to displace and embarrass other organs.

If the patient has an enlarged liver, nature ordinarily compels him to lie on his right side, because if he lies upon his left the liver weighs down the stomach and the spleen, and so renders him uncomfortable. For the same reason the patient with enlarged spleen lies upon the left side; and, if a female, upon whichever side she may happen to have an ovary enlarged by solid or fluid accumulations. The patient who has varicose ulcers of the leg will rarely get well while he walks about, but many cases will be cured simply by lying in bed with the limb affected placed upon an inclined plane. Erysipelatous swellings of the lower limbs, congestions of the uterus, or of the hemorrhoidal veins, commonly called piles, get better on the same simple plan.

Furthermore, most morbid processes are influenced by the supply of blood to the part affected, and this is, or may be, largely controlled by posture. If you happen to scald your hand, you will not fail to notice that the smarting is not half so severe when you lift the hand above the head as it is when you allow it to hang by your side. It has, I believe, been found that treatment of fractures of the leg by the anterior splint, in which the leg is swung above the level of the body, is not only very useful in moderating the excess of local inflammation in the earlier stages, but hinders and protracts the later stage of repair, by which the broken bones are united and the callus reduced. The control which you may exert over the circulation by changes of posture should be thoroughly understood and never forgotten, for it may be made of almost daily use.

In all cases of hemorrhage, you should at once, if you can, turn the weight of the column of blood away from the bleeding point. In all wounds of the extremities, the bleeding leg or arm should be raised as far as possible, and when the blood is flowing from the vagina or the rectum the foot of the bed should be raised and the pillows taken away. In cases where bleeding has already continued to faintness, where the amount remaining is insufficient to keep up the circulation through the brain, or in faintness from nervous shock—you will remember that faintness means a brain deprived of its proper amount of blood; you will also remember that any other organ in the body can better afford to lack a full supply of blood than the brain, and you will do what you can to keep what is left in the brain, by raising the foot of the bed—put two or three bricks under each leg, and, if the case be a very bad one, shut off the blood from the extremities by putting ligatures round the thighs and arms. By the aid of this same simple device of raising the foot of the bed, we have been able to dispense with one of the most uncomfortable appliances of old-fashioned surgery. It used to be the rule to treat fractures of the thigh by fastening the leg to the bottom and the thigh to the top of a long splint. The strap which crossed the perineum was always uncomfortable, and often produced serious ulceration. By raising the foot of the bed, the weight of the body furnishes the counter-extending force in a much more comfortable way.

The bowels or intestines slide freely in the cavity of the abdomen, in accordance with the law of gravity, and this is a very important fact in the management of some diseases of these organs. Weakly children suffer from prolapse of the rectum. This intestine comes outside of the anus, inverted much as you sometimes invert a finger of your glove in pulling it off. Sometimes it becomes strangulated by the compression of the sphincter muscle, and then it swells and becomes so large and tender that it is difficult to return it by direct pressure. Irish mothers will tell you the child's "little body comes down"—a phrase which, I remember, took me some time to learn. The same accident more rarely occurs to adults. If you have vainly endeavored to put it back, you will be much pleased to see it slide back, drawn upward by the weight of the upper bowel, when you lift the child up by the feet or cause the adult to take

THE KNEE AND ELBOW POSITION.

You should all be familiar with this knee and elbow position, in which the patient kneels and drops the chest down to the couch or bed. As this attitude is the direct reverse of the ordinary, so all the contents of the abdomen gravitate in a direction opposite to that which is ordinary. The liver, the womb, the ovaries, and the intestines fall upward toward the diaphragm. Downward displacements of these organs are at once relieved. I have often wished that I could keep a patient suffering from retroversion, or falling of the womb, in this inverted posture until it should, as it *would*, cure her. The congested and inflamed organ would become emptied of blood, and would glide back into its place without any other treatment. In cases of hernia, where the intestine descends and becomes strangulated and immensely swollen, so much so that it can not be put back, if the patient be put in the knee and elbow position the fluid contents of the tumor will first return, and then the intestine itself, or it may then be replaced by a little manipulation with the fingers, which would have been entirely fruitless with the patient standing or lying on the back.

In obstetrics this position is of the greatest value. In cases where the cord descends in front of the head, as you know, it becomes compressed between the neck of the womb and the child; circulation is shut off, and the child surely perishes if labor be protracted. In cases where an arm descends first into the vagina, the continuing pains wedge the shoulder into the pelvis, and the case becomes one of the most difficult and dangerous both to child and mother. Efforts to replace these parts you should always make, in the absence of the physician, at least so far as to place the patient in the knee and elbow position, and, without violence, press back the descended portion into the womb. Add to this, pressure on the child's head, felt through the abdominal walls, and directed in such a way as to move it toward the mouth of the womb, and you will sometimes gain to yourselves the satisfaction of averting a very serious danger and securing a safe and easy delivery.

This subject might be illustrated in many other ways, but I have, I hope, made its importance appear to you; and if you bear it in mind as it deserves, new and various applications of the principles will be all the time suggested to you.

CLINICAL RECORDS.

ART. IX.—*Case of Multiple Sarcoma.* By STARLING LOVING, M. D., Prof. of Principles and Practice of Medicine, Starling Medical College, Columbus, Ohio. Read before the Columbus Academy of Medicine April 14, 1876.

On the 28th of December, 1875, saw William G., æt. 28, a native of Germany, but long resident here; married, and by occupation a worker in iron. Has a fair complexion, blue eyes, brown hair, and aquiline features. Is slender but muscular, and well developed. Is somewhat emaciated, and appears anæmic, the skin is sallow, the conjunctivæ pearly, the lips and gums pale, the tongue large, indented by the teeth, and palid, and the hair is dry and harsh. The face is contracted and wrinkled, giving the expression of suffering as from protracted and severe pain. There is ptosis affecting the left eye, quite noticeable but not complete, as the lid is partly under control of the will. When the lid is raised the eye is found to be motionless and fixed, the pupil is dilated to a considerable extent, and does not respond to light. The patient asserts that he can not see near objects with the afflicted eye, and also that distant vision is imperfect. The skin is cool and perspiring, the pulse 78 per minute, rather feeble, but perfectly regular. There is no cough or other evidence of disease of the lungs. The sounds of the heart are normal.

The patient complains of pain and distress in his abdomen, which he at the present time attributes to obstinate constipation, and in part to the effects of some cathartic medicine which he took in the morning, without, so far, any other result. He suffers also from pain in the lumbar region, from pain and stiffness in the posterior cervical region, and tenderness in that region on pressure. He has headache, the pain being confined mostly to the occipital region. He has also pain in the lower jaw, particularly on the right side, near the first molar tooth, extending to the symphysis. At the same time it appears that the sensibility of the right side of the chin and of the lower lip is diminished. It seems, he says, as if these "parts were asleep." The upper lip to the nose, and the parts immediately adjoining, are similarly affected. The pain in the head is not acute in character, but it has been almost without remission during the past several weeks. On several occasions within the last three months he has had paroxysms of severe headache, continuing for hours, and completely disabling him for the time.

He says he is somewhat giddy when he stands and attempts to walk, and the correctness of this assertion was proven by his staggering and uncertain movements when he arose at my request and walked a few steps.

In addition to being large, pale, and indented by the teeth, the tongue is coated with a dirty-looking yellowish fur, very thick at the base of the organ. The saliva is abundant and somewhat adhesive, the appetite poor, the breath fœtid, and the bowels, as before intimated, obstinately constipated, as has been their condition, except during short intervals, for many months. The urine appears normal on inspection.

The patient has been ill several months; has suffered constantly, more or less, from the pain in his head, neck, and back, from constipation, and from dysuria, and on several occasions from retention of urine for short periods; but he has been able to continue his business until ten days previous to my visit, when his sufferings increased so much that he was obliged to remain at home.

He has taken, since he has been confined to the house, some purgatives and other remedies, but was not relieved by their action, and, finding himself worse to-day, decided to have professional advice.

Close examination revealed nothing by which the symptoms described could be accounted for; and, without arriving at a conclusion as to the nature of the case, I gave some opium to procure sleep, of which the poor fellow seemed sadly in need.

December 29. Found the patient in essentially the same condition as at last visit. The opium mitigated the pain and gave some hours of sleep.

On inquiring further into the history of the case, I was informed that at irregular periods, extending over several months, there had been paroxysms of febrile excitement, or rather of decided fever, followed by profuse sweating. No additional facts bearing on the cause of the symptoms elicited. Found on questioning the patient that there is no reason to suspect the existence of syphilis, and that there is no hereditary tendency toward any form of disease.

Thinking it possible, from the fact that there had been paroxysms of fever, that there might be malarious complication, I prescribed some quinine, and directed the opium to be repeated again at night. The cathartics taken yesterday operated, but not freely.

December 30. No essential change; treatment continued.

December 31. The patient complains more of pain in his bowels; thinks he would like more purgative medicine. Ordered one fluid ounce of castor oil, to be repeated if necessary; other treatment as before; encouraged a liberal amount of food to be taken.

January 1, 1876. The patient is uncomfortable generally, and suffering from increased pain in the bowels, which he attributes to the fact that the oil, of which he has taken four ounces, and in addition three or four large doses of infusion of senna, has had no effect. Ordered an enæma of warm water and infusion of senna, to secure, if possible, a movement; suspended the quinine, but ordered the opium to be continued, as there is also much pain in the head and neck. Informed the family, on being questioned, that I thought the seat of disease at the base of the brain—that there was a tumor there of some sort, or inflammation, which probably would end in abscess. I did not know how to account for the obstinate constipation, unless by supposing it to arise from the condition of the brain. I inclined to the belief that there was an abscess rather than a tumor, and that the patient could not recover, or that recovery was doubtful.

January 2. The only change since yesterday is that the bowels have been imperfectly moved by the cathartics. The patient is exhausted, and says he is much weaker. His pulse is full, his skin cool and moist; he has no appetite; slept very little last night; complains much of his mouth; says he has toothache, affecting the first molar tooth of the upper jaw on the right side, and that his mouth is very sore. Examination revealed nothing except that the gums are somewhat swollen and rather dark-colored; no decayed teeth found. I attributed the pain to the disease in the brain affecting the nerves at their roots. Prescribed some citrate of iron with quinine and iodide of potassium; substituted bromide of potassium for the opium. Ordered, with a view of giving temporary relief, a sinapism, to be followed by fomentations to the back of the neck; ordered wine, as the patient chooses to take it.

January 4. No change of note since last record. The effects of the prescriptions made on the 2d inst. not very decided; the patient's sufferings have increased rather than diminished; the bromide failed to produce sleep. The wife called my attention to a small swelling on the left side of the forehead, which she said made its appearance yesterday. This swelling was perhaps a half inch in diameter, half oval in shape, painless, without discoloration, and very hard. I thought it an exostosis which had escaped notice, and said I did not consider it important. The ptosis is, perhaps, more decided than at last note. Ordered the bromide discontinued and the opium resumed.

January 5. No change, except that the opium so far controlled the pain as to allow the patient to sleep a few hours during the night.

January 6. Had a rather comfortable night. Complains again of constipation, and desires to take more oil. Ordered one fluid ounce of oil, to be repeated, if necessary; ordered large enemata to assist its operation. Discontinued the opium, which, since last note, he has taken pretty freely during the day, as well as at night, and substituted the hydrate of chloral, to be taken in fifteen-grain doses every two or three hours, as might be necessary to procure rest—the dose to be increased to twenty or thirty grains, if required.

January 7. The oil operated partially after the administration of three ounces, and the use of two enemata. The patient complains of pain in the angle of the jaw, on the right side; says something is wrong with the back tooth of the upper jaw—that there is bleeding from the gums. Examination showed a livid fungoid-appearing growth behind the last molar tooth of the upper jaw, more or less firm, but still spongy, and oozing blood. It was, perhaps, as large as the tip of one's little finger, and had the appearance of an epulis, or of exuberant granulations such as are not unfrequently seen springing from the gums around decaying teeth. I expressed the opinion, although I could find no evidence of decay in the tooth adjoining which the growth was situated, that such was its nature, and that it was probably of not much consequence, except in so far as it might cause inconvenience.

No other change worthy of special notice. The chloral had a pleasant effect, but the patient says it does not control the pain so well as the opium. Ordered the chloral, wine, etc., continued.

January 8. The only observable change is increase in the size of the fungoid growth in the angle of the jaw, and, perhaps, more pain. The patient complains much of his mouth—says that the tumor annoys him greatly; he makes frequent endeavors, which are unsuccessful, to pull it away with his fingers. I advised him to desist, and gave him an astringent lotion, the tincture of the perchloride of iron (two fluid drachms to one fluid ounce of water), as a means of checking the bleeding and repressing the growth.

Evening. The patient requested a second visit, as his sufferings increased in the afternoon. Has fever, which was preceded by a rigor or chill. Pulse 120; rather hard. Temperature 102° Fahr.; patient restless. Pain in the head and neck increased; the head retracted. There is no apparent cause for this paroxysm.

Suspended the chloral and the iron and iodide of potassium mixture, and substituted Dover's powder (ten grains), to be repeated every two hours, until the symptoms are mitigated, and with it full doses of aconite (tincture of the root).

January 9. The fever subsided during the night. The patient slept three or four hours after midnight. Pulse 90; temperature nearly normal; pain less. The tumor has sensibly increased in size.

Afternoon. Requested Prof. Pooley to see the patient, in consultation with me. The result of the consultation was not satisfactory, the Professor not being able to form a decided opinion as to the nature of the case. He agreed with me that the symptoms arose from pressure upon the base of the brain, but was not certain as to the nature of the cause. He inclined to the opinion that it was a tumor, perhaps osseous in character, and not an abscess, as I had supposed. He did not appear to think that the growth or tumor in the angle of the jaw had any connection with the cephalic symptoms. He supposed, as I did, the swelling on the forehead to be an exostosis, and of not much consequence. He would not interfere with the tumor in the angle of the jaw, notwithstanding the expressed desire of the patient for its removal—at least he would not interfere with it for the present, not being able to decide its character, having seen it but once. He expressed the opinion to me that it made no difference as to the plan of treatment, as he thought the patient could not recover. Agreed to see the patient again when convenient to me.

The patient masticates his food with difficulty, and says the discharge from his mouth is so offensive that it makes him sick, but we decided, notwithstanding, that we would not interfere.

January 10. This morning another swelling, presenting the same characters as that already described, was observed on the upper jaw, right side, between the first molar and bicuspid teeth. The patient perhaps more comfortable, but suffers greatly from his head and neck, and (he says) from want of food.

He is emaciating perceptibly, and is very despondent. All treatment, except opium, wine, and food suspended.

January 11. Another tumor, also on the upper jaw, but on the left side, between the first and second molar teeth, has appeared since yesterday; also one on the lower jaw, on the left side. The patient complains greatly of his mouth, from which there is now considerable and very offensive discharge of saliva, mixed with blood.

Requested Prof. Pooley to visit the patient with me again. He came, accompanied by his brother, Dr. T. R. Pooley, who is an oculist, and who wished to examine the patient's eyes, having heard me speak of the condition of those organs. We decided the case to be one of multiple sarcoma, as was not at this stage very difficult to do.

Dr. T. R. Pooley made a careful examination of the eyes with the ophthalmoscope, and found them to be in a perfectly normal state. He decided that the cause or causes interfering with the movements of the affected eye were external to and behind the organ, and not connected with the globe; that it was probably a sarcomatous tumor at the base of the brain.

January 12. Three or four swellings, similar to that which, first of all, made its appearance on the forehead, are seen this morning at various points on the head; also another between the two last molar teeth on the lower jaw, left side; one observed, also, on the left side of the chest, near the sternum, between the fifth and sixth ribs. The patient suffers constantly from pain, mostly, as before, at the back of the head and neck, and in his mouth. The tumor in the angle of the jaw is now as large as a walnut, and is constantly oozing an unpleasant sanious discharge. There was not much sleep last night, notwithstanding full doses of opium, and the patient's strength is much exhausted. Skin cool, pale, and moist; pulse 74, weak; tongue more furred; no appetite; face expressive of great suffering; there has been no movement of the bowels for several days. Ordered large enemata of warm water and castor oil, to be repeated *pro re nata.*

January 13. No change, except that one or two new tumors, resembling those before present, have appeared on the head. No movement of the bowels, though three enemata were administered. Ordered the enemata to be repeated. Opium as before.

January 14. The patient had a miserable night; his pain was and is intense; he slept very little; was delirious part of the night, but is quite rational now. No effect from the lavements.

Lies quite still, but is evidently suffering greatly, as he moans constantly.

Evening. The patient had, during the afternoon, again a rigor, followed by fever and increase of suffering. Pulse 120;

temperature 104°. Two new tumors have appeared on the head to-day. The lavements produced no effect on the bowels. Ordered some aconite, and continued the opium.

January 15. The fever has, in a great measure, subsided. The patient is quiet, and says he suffers less, though still severely, from pain in his head and neck. He speaks slowly, but with perfect enunciation. He is said to have had something like a convulsion last night, about eleven o'clock, during the fever. The spasmodic movement seemed to be confined mostly to the left side.

Evening. No change, except that the patient has lain in a semi-stupor during the afternoon, since 2 o'clock. He seems to be somewhat deaf. No movement from the bowels.

January 16. Is suffering a great deal this morning. Has been on his feet attempting to walk the floor, sitting on a chair and lying on the bed alternately; he is now lying across the bed, with his head hanging over the side, and says he is easier in that than in any other position he has assumed. The pain is still mainly confined to its old locations, the head, neck, and mouth, but he also complains bitterly of pain in his bowels, which have not been moved since the 12th. The bladder is somewhat distended, and there are frequent efforts at micturition, which are only partially successful, small quantities of urine being voided in jets with each effort. He vomited once during the night, but he is not now suffering from nausea.

Ordered a large enema to be administered, with the hips raised, and a warm fomentation to be applied over the region of the bladder.

Evening. No special change, except that it is evident that the patient is failing fast. The enema had no effect, but the bladder was evacuated during the afternoon. Ordered medicines as before, and the stimulant.

January 17. No change for the better. Had very little sleep during the night, but slept two hours this morning.

The pain is, perhaps, not so severe. Fourteen tumors altogether are now to be observed on the head and neck, resembling each other very closely, differing only in size. In this respect they vary from a mere point to the size of a half pigeon's egg or larger. They are half oval in shape, somewhat flattened, without discoloration, are hard, unyielding, and not sensitive. They give the scalp the appearance of being studded with bosses. The abdomen is tympanitic and somewhat tender. The bladder is again somewhat distended, and the patient complains that he can not void his urine.

Ordered the fomentation to be reapplied to the abdomen, and the opium to be continued.

Evening. The patient suffering more acutely than this morning; has fever, pulse 112; temperature 102°; is very restless; is delirious, and makes pitiful moans. The bladder is now considerably distended, but the patient does not seem to suffer especially from it. The end being evidently near, nothing was done except to increase the quantity of opium, which was ordered in full doses, to be repeated as often as necessary.

January 18. The patient, after passing a terrible night, died at 9 o'clock this A.M. The fever continued until morning, when it subsided, and death ensued seemingly from exhaustion.

AUTOPSY.

Examination five hours after death. Body pale and considerably emaciated. Hypostasis on posterior and dependent portions. Rigor mortis not decided. On the removal of the scalp, the tumors before mentioned separated with it, leaving bloody depressions on the pericranium corresponding in size with their bases. On the removal of the calvarium, the dura mater was found studded with tumors, to perhaps the number of forty, varying in size, like those in the scalp, from a mere point to that of a filbert. They were, perhaps, more flattened than those on the external surface of the skull, and of rather softer consistence. On removal of the dura mater, its inner surface was found to present spots corresponding to the tumors on its outer surface. The pia mater appeared healthy, except that it was congested. On removing the brain, a tumor was found attached to the left side of the body of the sphenoid bone and the apex of the petrous portion of the temporal bone, and pressing upon the third, fourth, and sixth nerves at their passage through the dura mater. This tumor was grayish red in color, somewhat gelatinous in appearance, but of rather firm consistence. In shape, it was irregular and somewhat flattened. Its size is that of a pigeon's egg. Two smaller tumors were found, one on either side, near the middle of the horizontal portion of the lateral sinus. Another was found near the mastoid foramen. All these were on the inner surface of the dura mater. On the cranial surface of the dura mater another was found in the groove for the lateral sinus. The first mentioned was situated over the cavernous sinus; the second near the descending portion of the lateral sinus; the third and fourth near the lateral sinus. All were in the immediate vicinity of blood-vessels, veins; all had about the same color and consistence, grayish red, somewhat gelatinous, but still firm. That attached to the sphenoid bone was, perhaps, firmer than the others, and much the largest.

In the centre of the middle fossa, also external to the dura mater, was another tumor, which extended into the mouth through the spheno-maxillary fissure, with its largest portion in the mouth, behind the teeth, extending into the angle of the jaw and outward, displacing the cheek somewhat. This was much the largest of any yet observed. This, it will be remembered, was the first tumor observed in the progress of the case.

On the left side a depression was found on the lower surface of the middle lobe of the cerebrum, underlying the extremity of the middle horn of the lateral ventricle, and agglutinating the pes hippocampus to the parts above it to the roof of the middle cornu. This depression was undoubtedly caused by the upward pressure of the tumor attached to or springing from the sphenoid bone. The substance of the brain was healthy throughout. Springing from the ensiform cartilage was a tumor three-fourths by a half-inch in diameter.

On opening the chest three tumors, of small size, were found in the middle mediastinum, on its right wall. On the pleura costalis two tumors were found on either side, situated over veins. Several were found on the visceral pleura on both sides. Two were found on the inner surface of the pericardium in its left anterior portion. Lungs healthy, except at the apices, where there were cicatrices, evidently old, resulting apparently from the discharge of tubercle and slight anthracosis. No deposit of recent tubercle discovered. The parietal peritoneum was healthy, as was the visceral, except on the falciform ligament of the liver, where there was a small tumor, and in the vesico-rectal fold, where there was a tumor larger than a hen's egg, surrounded by twenty or more of smaller size. These tumors seemed to spring from the tissues underneath the membrane, and to have pushed it inwards in their progress without having involved its continuity. The mesenteric glands were considerably enlarged and indurated, and at one or two points in their midst were some small tumors in the immediate vicinity of veins.

The stomach and intestines were healthy. The intestines were considerably distended with faecal matter. The bladder and urethra were healthy. The bladder contained a pint or more of urine. The liver, spleen, and kidneys were in the normal condition.

Microscopic examination showed the tumors to be round-celled sarcoma, without admixture.

I had the assistance in the post mortem of Doctors Frankenberg, Pooley, and Wheaton, to whom I am indebted. I am especially indebted to Doctor Frankenberg, who made the microscopical examination.

Sarcoma is not a rare disease; but it is not common to see it in the multiple form, nor do we often observe a case presenting more interesting points than that which is the subject of this report.

ART. X.—*Strangulated Inguinal Hernia, Complicated by Pregnancy.* By WM. H. VAN WYCK, M.D., Visiting Physician to Charity Hospital, etc.

Mrs. R., æt. 39. Married; native of England. Personal history good. She has had thirteen children, all of whom have died in infancy and childhood except three, who are still living. She has been troubled by a hernia, which, according to her account, was caused by lifting, for the last nineteen years. Never has had any difficulty in reducing it; has not worn a truss for some time. The patient was in the sixth month of pregnancy.

October 10, 1876. At 3 o'clock in the afternoon, while walking, the hernia came down, and she felt some pain; when she tried to reduce it she failed to do so. Pain increased, and at 8 P.M. she began to vomit, and sent for me. I saw her at half-past nine. She was retching and had constant nausea. The whole of the lower part of the abdomen was very sensitive to pressure. Vomiting had not been stercoraceous at any time.

Upon examination I found in the left inguinal region an oval tumor, as large as a duck's egg, soft and doughy to the feel, and dull on percussion.

An attempt at reduction brought on strong pain resembling that of labor, but a vaginal examination revealed that the uterus was quiet. Ordered morphiæ sulph. gr. $\frac{1}{8}$ every three hours, beginning at 10 P.M. In half an hour she vomited.

October 11, 1 A.M. She took a powder, and vomited in ten minutes afterwards. 2:30. Another taken and retained. This relieved her of her pain and nervousness. 6 A.M. Another powder. 11 A.M. Tumor same size, patient quiet and comfortable. By taxis the tumor was reduced to one-third of its original size. 2 P.M. The tumor is again as large as ever. Patient suffering more pain, and more sensitive to pressure over the hernia.

At 4 P.M. Dr. J. L. Little was called in consultation, the patient was etherized, and taxis tried by Dr. Little, but without any good effect. I then proceeded to operate, by making an incision about four inches long over the hernia, and carefully cut through layer after layer, until I came down to the sac, upon opening which a small quantity of bloody serum escaped.

A small knuckle of intestine was found protruding, and a constriction at the neck of the sac. The abdominal ring and the inguinal canal were free. The intestine was in good condition, congested, and of a cherry red color. The constriction was divided, and the gut readily reduced. No hemorrhage, no adhesions. The wound was closed by six interrupted sutures, compress applied, and retained in place by a spica bandage, and $\frac{1}{3}$ gr. morph. sul. ordered.

9:30 P.M. Pulse 104, temperature 99°; patient feels comfortable; no nausea. Ordered morph. sul. sufficient to keep the patient comfortable, and beef tea.

October 12. Patient took a third of a grain of morphine at 2 A.M., 7 A.M., $2\frac{1}{2}$ A.M. At this time her pulse was 88, temperature $98\frac{3}{4}$°. She did not sleep well last night, but had no pain or nausea. Abdomen tympanitic, but gives her no trouble. Has made water twice since the operation. Ordered liquid food ad libitum, and morphine in sufficient quantity to keep her quiet and entirely free from pain. 9:15 P.M. Pulse 84, temperature $98\frac{1}{2}$°; patient doing well in every respect; has slept some; continue treatment.

October 13. Powder at 1 A.M. and at 6:30 A.M. 10 A.M. Pulse 84, temperature 98½°. Bowels moved a little, movement accompanied by a great deal of flatus, which made her feel more comfortable. Abdomen still tympanitic, appetite poor. Morphine continued, gr. ⅓ every fifth hour. Left labium a little swollen.

October 14. Bowels moved freely after an enema; pulse 84, temperature 99½°; appetite poor. Dressings removed, wound doing well. Ordered morph., gr. ⅓ every 6 hours, also 5 grs. of sulph. quiniæ three times a day. Pulse weak; is to have wine, beef tea, and milk ad libitum.

October 15. Pulse 90, temperature 98½°. Appetite continues poor. Slept well last night, pulse stronger to-day, tongue clean. Sutures all removed, the wound less united at its upper portion. Quinine continued, morph. ⅓ gr. at night.

At 4 P.M. she began to complain of pain, and took ⅓ of a grain of morphine. 10 P.M. Has paroxysmal pains in back and abdomen at intervals of from seven to ten minutes; at 10:45 took ⅓ gr. morphine.

October 16, 12:30 A.M. Pain nearly gone, but the os uteri is slightly dilated, and the child's head low. Another compress was applied over the seat of the hernia; to take ⅓ gr. morphine every 4 hours. 10 A.M. Patient has slept well since morning; pulse 81, temperature normal. No pain; morphine continued every five hours, quinine stopped; bowels moved freely yesterday afternoon.

October 17. Pulse 76, temperature 98½°. Slept well; appetite better. She says she feels better. The skin around the wound has an erysipelatous redness, and the tissues feel hard and brawny. A ligature which had been applied came away to-day. The wound is not united as much as it appeared to be on the 15th. Continued treatment.

October 18, 10 A.M. Pulse 76, temperature normal. Wound looks much better; appetite good. Morphine ⅓ gr. every six hours.

October 19, 9 A.M. Bowels moved yesterday afternoon after an injection. Patient feels better to-day. Pulse 76, temperature normal; appetite good. Treatment continued.

October 20. Pulse and temperature normal. Wound healing kindly. Patient feels well. Ordered morph. sul. gr. $\frac{1}{6}$ every six hours. Allowed to sit up a little while.

October 21. Pulse and temperature normal. Appetite good; bowels moved slightly yesterday; to take $\frac{1}{3}$ gr. morphine at night.

October 24. Wound has healed completely, except a slight spot at the inner angle. She was directed to put on her truss whenever she got up, and discharged from treatment.

December 26, 1875. Mrs. R. was delivered of a fine, well developed boy.

In reviewing the case, I have no doubt that the quinine which she was then taking in large doses was the cause of the threatening of miscarriage which occurred at one time, and not any irritation or other effect of the operation.

Art. XI.—*A Case of Hæmacelinosis, succeeding nerve shock.* By N. C. Reed, M.D., Columbus, Ohio.

On Saturday, April 15, 1876, I was called hurriedly to see one John Frazer, a young man, said to have fallen from a roof. Upon arriving at the house to which he had been taken, I found the patient to be twenty-six years of age, rather muscular and strong. He had fallen *through* the roof of the "round-house" of the Pittsburgh, Cincinnati, and St. Louis Railway. This roof is constructed of sheet-iron, being nailed upon, and parallel to, the rafters, the rafters being so far separated from each other as to be reached by the breadth of the sheets. A number of years of exposure to the weather had so oxidized the iron that its strength was not sufficient to support the weight of the men who had ascended the roof to extinguish a fire which had caught in one of the ventilators.

Eye witnesses state that Mr. F. came through the roof feet foremost; that the first object struck in his descent was the smoke-stack of a locomotive, which was standing directly beneath him; that he bounded thence to the foot-board of the same machine. This served to turn him over in such a manner that in striking the floor he struck on the right side of his face and right shoulder. He then bounded several feet away and into the next ash-pit. These pits are three and one-half feet deep, and the bottom at least twenty-five feet from the roof.

The patient was taken up in a state of unconsciousness and carried home, where I saw him within thirty minutes after his accident. He was sitting up at the table, washing his very much swollen, bruised, and bloody face. A little blood was oozing from his nose. There was a contusion over the right malar bone, and corresponding zygoma, extending upward over the temporal region. A small lacerated wound was on the bridge of the nose. Swelling had completely closed the right eye, and the integument corresponding to the swelling was deeply ecchymosed. There was no injury done to the eye itself, nor was there any ecchymosis of the conjunctiva. He answered all questions intelligently, although his mind seemed a little lethargic and slow to comprehend the questions put. He realized that he was at home, but was at a loss to know how he got there—whether he was carried or walked. When asked to lie down, he rose to his feet and walked into an adjoining room unaided, and without staggering. His pulse was 74 per minute; complained of no pain, aside from a sensation of stiffness of the muscles of the neck and shoulders. In fact, little injury could be discovered in his case, more than the shock to the nervous system. Cold applications were made to the head and face, and the epistaxis ceased very soon. One-fourth grain doses of morphia were ordered at intervals, as symptoms required.

Sunday, April 16. Saw the patient at 9 A.M. He had slept well during the night. Complained of a slight headache and the continued stiffness and soreness of the neck and shoulders. No hemorrhage had occurred, although he had twice during the night vomited coagula of blood. I suppose this to have been blood that had been swallowed the evening before, as he was carried home lying upon his back on a board, while his nose was yet bleeding. Expressed himself as feeling very well, except the pain in his head, neck, and shoulders, upon attempting to move. Pulse 80. Countenance as placid and smiling as the condition of his face would admit of. Gave

℞ Pot. brom., ʒiij.
Chloral hydrate, ʒj.
Aqua cinnam.
Sqr. limon., *a a* ℥ii. M.

S. A dessert spoonful every two hours.

Saw him again in the evening, and found him feeling better, the cephalalgia having been removed. Has had no emesis. Part of the afternoon had been spent in walking in the yard. Still complaining of a little pain in the neck and shoulders, but not so severe.

Monday, April 17, 9 A.M. Found my patient sitting in a room adjoining his bed-room. Mind as usual—after first visit perfectly clear. Pulse not counted, but near normal. Appetite, which had been poor, a little improved. For the pain in neck gave a liniment of aconite and chloroform.

On Tuesday every symptom pointed to a speedy recovery. Appetite good; free from pain; and the time spent between lying down, sitting, and walking out.

Wednesday, concluding no further treatment necessary, discharged my patient.

On Friday, 21st, at 6:30 A.M., a messenger appeared at my door, stating that my patient was bleeding at the nose. Going at once to see him, I found his bleeding to be rather profuse, and had been for two hours and a half. The loss was between two and three pints. Attempted at once to stop the hemorrhage by injecting a strong solution of Monsell's styptic, and, after repeated trials for some time, failed. Without further delay, I resorted to the operation of plugging the nares, after which the hemorrhage ceased. In about two hours, however, he began spitting blood, but, supposing the posterior plug was leaking a little, paid no attention to it. Calling at 4 P.M., I for the first learned of his spitting blood, and upon examination discovered the blood to be escaping from the gums. For this the styptic was more efficient, and with it the hemorrhage was controlled. His pulse was 70, and, considering the amount of blood lost, strong. Had no pain, and was cheerful. Had just come in from walking in the yard, although feeling a little weak. His thirst was very moderate, which was relieved with iced milk and lemonade.

Saturday, 22d, 8.30 A.M., found the patient quite feeble, with a pulse of 48 per minute. About six o'clock had passed from the bladder a quart or more of very bloody urine. Up to this time the secretion of the kidneys was perfectly healthy. Skin was cool, moist, and pallid, that of the face of a greenish yellow color, resulting from the fading ecchymosis. Respiration 14; not labored, but quiet and easy. Gave pulv. opii., gr. ¼; carb. ammon., gr. iiss; ferri sub. sulph., gr. i, every three hours. At 11 A.M. the symptoms were not improved. Respirations 12 per minute. Has had two more discharges of blood from the bladder, but not so large as the first one. Pulse 46. Characteristic petechia of the hæmacelinosis had appeared on the lower extremites and body. The spots were more numerous in the lumbar region of the back than elsewhere. Extremities cool. Able to converse intelligently, but not so inclined.

At 11:45 A.M. called Prof. Hamilton in consultation, at which time no difference in his condition was noticeable, except the additional symptom of a slight exophthalmos of the right eye. There was no dilatation of the pupil of either eye. No symptoms of cerebral compression could be seen. Could talk and answer questions well. His mind has shown no disposition to wander since the elapse of an hour after his fall. Skin cool, and covered with perspiration. Pulse 45, and very feeble.

At 3 P.M. found the symptoms very materially changed. The pulse had risen to 82 per minute, but very weak. Respirations heavy, labored, and stertorous; 10 per minute. Extreme carphologia and delirium. Mind wandering to very different objects. Asks for his tools, hammer, etc., one moment, and calls for a dispersion of dogs and cats the next. Has had a very copious discharge of blood from the bowels since last saw him. Exophthalmos of the right eye very marked, with great dilatation of its pupil, while the pupil of the left eye was contracted. Complete paralysis of the left side of the body. All movements were made with the limbs of the right side, the arm being extended in different directions, pulling at the bed-clothes and clutching at imaginary objects. Any thing placed in the hand was grasped very firmly for a few seconds, and then dropped. These symptoms continued until about five o'clock, and half an hour later he died quietly, without a struggle.

A question of some interest arises in regard to the cause of this active and fatal purpura, especially when we come to note the fact that this patient was not subject to one of the many causes given of this disease. Upon inquiry, I learned that he could not have hæmatophilia. He lived in a healthy locality, and suffered from none of the general disorders of nutrition. He was not given to luxurious living, but strictly temperate, healthy, strong, and active.

Could this disease have arisen from the nerve shock experienced? If so, would it have lain inert for seven days after the shock was produced?

ART. XII.—*A Case of Vesical Calculi in a Female.* By J. M. WHEATON, M.D., Professor of Anatomy, Starling Medical College, Columbus, Ohio.

Mary H., aged 55, colored, native of South Carolina, was admitted to St. Francis Hospital June 11, 1875. She stated that she was suffering from cancer of the womb, and was placed in a room occupied by incurables, where I saw her on June 14. She was then weak, somewhat emaciated, with a pulse of 92. She stated that the disease had first appeared while she was living in Memphis, Tenn., nearly five years since, and that there, at Nashville, Tenn., and at Lancaster, Ohio, her present residence, she had been under medical treatment without benefit, and had come to the hospital to die.

There was constant dribbling of very fœtid urine, and complaint of burning, lancinating, and bearing-down pain in the hypogastric region. For various reasons, connected with the patient's surroundings in the hospital, a careful physical examination of the case was not deemed advisable at the time. The treatment was anodyne, stimulant, and disinfectant.

On the morning of the 21st she presented me with a urinary calculus, which she stated had just passed, after a night of much suffering, and that her sufferings were still unrelieved. An examination was made, and a calculus was found engaged in the urethra, so far advanced as to dilate the meatus to the extent of one-third of an inch. Chloroform was administered, and an attempt made to extract the stone with forceps, which failed by reason of the crumbling of the stone. Two fingers were then introduced into the vagina, and by pushing with these alternately from behind, the stone was forced out. A digital examination of the uterus and bladder revealed no disease of the former, but, as might be expected, a greatly contracted bladder, with thickened mucous lining. No remaining calculus discovered. Instant relief followed.

Twenty-four hours later the patient had considerable control over the bladder, and in the course of a week the power of retention and expulsion were entirely regained, at which time she went to her home, and has since been reported as well.

Most of the interest of this case attaches to the calculi. The first stone, which was passed without assistance, was of an irregular and somewhat flattened oval or pear shape, 1$\frac{5}{8}$ inches in length, 1 1-16 inches in greatest transverse diameter, $\frac{3}{4}$ inch in width, 4 inches in circumference longitudinally, 3 inches in its greatest transverse circumference. The latter measurement indicates the amount of dilatation necessary to effect its passage. It had evidently been much larger, as its whole surface was eroded, and in places several layers of stratified deposit were exposed. Its weight was four drachms.

The second stone was much larger, though of less specific gravity than the first, weighing five drachms. It was irregularly truncated at each extremity, with an elliptical concavity on one surface. In fact, it presented much the appearance of the posterior three-fourths of the os-calcis as seen from the outside. Its length was 2 inches, transverse diameter 1$\frac{1}{4}$ inches, longitudinal circumference 5 inches, transverse circumference 3$\frac{3}{4}$ inches. This stone was not eroded, and had probably been recently encysted; otherwise it would have presented some indications of friction, as did the first. At the same time it is difficult to explain how the first became so worn, except on the supposition that there had been still another calculus, which had previously escaped, and of which there was no history, or that the second stone had become encysted and increased in size subsequently to the erosion of the first. Both stones were of the same chemical nature—triple phosphatic. The nucleus of the first stone was found on section to be central, that of the second on one side, near the concavity mentioned.

Doubtless stones as large or larger have passed spontaneously or been removed *per vias naturales.* Gross, in the last edition of his Surgery, mentions several without measurements, and leaves somewhat in doubt as to the manner of their extrusion.

I am indebted to Dr. Pooley for the following from Coulson, who says (page 165): "When a calculus descends from the kidney into the bladder, or when a nucleus by any accident is formed in that viscus, in the female, it is most usually expelled during micturition, by the mere efforts of the bladder to empty itself, and it is surprising to what an extent the female urethra is sometimes spontaneously distended. Tulpius (1. 111 obs. 7) relates the case of a lady, aged 89, who spontaneously passed a calculus per urethram weighing three ounces and two drachms; but it appears to have paralyzed the sphincter vesicæ, as she was ever afterward troubled with incontinence of urine."

It is to be regretted that, as the amount of dilatation is the chief point of interest, measurements were not given.

EDITORIAL.

It has been said that a book that needs an apology should never be published, and we presume the same must be true of a medical journal. Nevertheless, in introducing a new candidate for professional favor among the multitude of medical periodicals already in existence, a few words of explanation seem to be appropriate. Columbus for thirty years past has had a medical school—Starling Medical College—and, for sixteen years of that time, the old Ohio Medical and Surgical Journal was published here, making it, to some extent, a medical center. The old journal has been discontinued for the last ten or twelve years; and, though the college still remains, in a condition of greater prosperity than ever, no other has arisen to take its place.

There are no medical journals published in the State, except two in Cincinnati, and they by no means so fully meet the demand as to preclude the success of another.

Central Ohio is rapidly increasing in population, wealth, culture, and importance.

Pari passu with this growth, of course its medical profession is advancing in numbers and intelligence, and for some time past has felt the need of an organ of its own. This need had been expressed to the editor, and many tentative schemes were on foot to meet it, but none seemed to promise immediate fulfillment; wherefore, we have taken the field, and essayed to supply what many felt to be a real desideratum.

We know no parties or cliques in medicine, and take cognizance of no conflicting or warring interests. To cultivate the most extensive of sciences, and the most beneficent of arts, is enough for us.

Among all the agencies that have contributed to the recent astonishing advances in medicine and surgery, none have been more influential than its periodical literature. In the pages of the journals all advancements, novelties, and improvements find an immediate record, by which they are brought to the attention of the great mass of the profession, by whom they are to be tried, and from whom the verdict of their worth or worthlessness is to come. Here are gathered the immense clinical experiences of the profession, from which generalizations are to be drawn, and which constitute the material, in rough, from which our more elaborate literature is constructed.

To this rich field all have access, and to it all should be contributors. Bacon nobly said, "I hold every man a debtor to his profession," and this is most true of the medical man. Every one may, and should, contribute his mite to the general stock. Any fact or case well observed, and simply and accurately described, is valuable, and thousands such are lost for want of a record. This is a mistake on the part of the members of the profession. They seem to think great acquirements, brilliant genius, and high position must qualify the writer for the journals. But, though all these things are desirable, they are not the best qualifications, which are those within every man's reach: acute observation, and plain, truthful delineation.

To the medical profession at large—but more especially to that of Ohio and the West—we offer our pages, and would urge them to make free use of them. The Journal is theirs, not ours. We are only their servants, and the ultimate success of the enterprise must rest with them. Of course, we need pecuniary support, and have no hesitation in asking every one who receives this number to forward the extremely low price of subscription for one year, and to bring the Journal to the notice of their friends. This first number has been somewhat hastily prepared, and may present some imperfections, which we shall strive hard to avoid in the future. There are a multitude of delays and hindrances incident to a new enterprise of this kind, which not every one can fully appreciate, but for which we hope our readers will make allowance. The article on the spectroscope in practical medicine, promised in our prospectus, could not be got ready for this number, but will appear in our next. We offer in its stead a most able paper on Syphilis of the Nose and Larynx, by Dr. CLINTON WAGNER, of New York, which will amply repay perusal, and is a valuable contribution on the subject. We have also articles promised for the next number from Drs. W. A. HAMMOND and JOHN C. PETERS, of New York. We are also trying to perfect an arrangement by which our readers will be presented in each number with a medical letter from New York, giving all the news and gossip of the medical world fresh from the great metropolitan center. We did expect to present such a letter in this number, but an unforeseen accident frustrated our design.

From time to time we shall endeavor to incorporate other new features of value, and thus keep our Journal equal in interest and variety with the best in the country. With these few words of introduction we close, and commit our venture to the judgment of an enlightened and liberal profession.

REVIEWS.

Review of the Annales Medico-Psychologiques for the first quarter of 1876.

The Annales Medico-Psychologiques, edited by Baillarger and Lunier, is a bi-monthly journal, with an average of 150 pages per number. The present year is the thirty-fourth of its publication. Two volumes are published each year. In addition to the distinguished editors-in-chief are several gentlemen who assist in the labor of its management, equally noted, as Brierre de Boismont, Calmeil, Constans, Dumesnil, Paul Janet, Legrande du Saulle, Lelut, Maury, Moreau, Rousseln, and Trelat. It numbers among its list of contributors some of the best writers of France. The table of contents shows a perfect system in the arrangement of its material—first, original articles; second, reviews, French and foreign, each of which divisions are sub-divided. The journal is devoted to insanity, the neuroses, and that part of legal medicine pertaining to insanity. This journal is imported by several houses; we receive it, as well as all of our foreign journals, from E. Steiger, of New York. The cost of this, the Annales d'Hygienie, and of the Archives de Physiologie, is the same—ten dollars per year each.

The January number opens with an article by Dr. Taguet, of the Asylum of Ville-Evrard, entitled *Les Alienes Persecuteurs.* This class of individuals, says the Doctor, enjoy their liberty until their eccentric and strange conduct excites the idea of their mental unsoundness. Doubting nothing, they accept and embrace, with all their characteristic rashness, without an inquiry as to their intellectual ability, any pursuit. They rely upon their fine manners, their education and cultivation. Their reason does not appear to be affected; they reason in the main correctly, but exaggerate and misrepresent to suit their desires. When they embrace an idea they pursue it to its full extent; nothing can restrain them. They have such confidence in their own ability and the value of their views, that all who oppose them are considered enemies. This self esteem ends by a degeneration into a true delirium, when they commence to attract attention.

The Doctor then reports at length five cases. He says they do not constitute a special form of insanity, as we see the same symptoms in many different forms. He is content to cite two: megalomania (*i. e.* greatness), and general paralysis. All cases coming under his view of the subject are those whose ideas are exaggerated. He makes a distinction in these cases between those of true general paralysis and the delirium which bears more resemblance to hypochondriasis, those with exalted ideas, but who complain of all the world, and are extremely unfortunate in their own estimation of their condition. He mentions what so many writers do at the present time concerning paralytics: *an apparent recovery, of variable duration*, during which they insist upon their release if in restraint.

The second article is by Dr. Ponza, of the Asylum of Alexandria, upon the *influence of colored light in the treatment of insanity*. His ideas were first drawn from some captain of the English marine, who fattened fowls and animals to an extraordinary degree under the influence of *violet* light. Fruit and vegetables were also developed in like manner under violet glass. He submitted his views to Father Secchi, of the Observatory of the Roman College. His response was as follows:

"The idea of studying the disorders of the insane in connection with magnetic perturbation and colored light, above all the violet rays of the sun, is of remarkable importance, and I believe well worthy of being cultivated. At present we have not, so far as I know, any observations upon the influence of colored light, that is, violet solar light. It seems to me important that such observation should be made. Violet light is, beyond doubt, that which acts upon vegetables. I know not whether it is as active upon animals.

"The practical solution of the problem can be made by reducing to experiment upon the insane and those attacked with nervous disorders the action of these rays, for we can not create violet light in any other way than as we subtract it from the red, yellow, blue, etc.

"It is not possible to condense this special light more or better than it is condensed in the natural light of the sun; it is also very difficult to find a substance that will let pass only the violet rays. A light much richer in violet rays than sunlight is the electric, but this is practicably inapplicable.

"The only practical attempt we can make is to filter, so to speak, the solar light in a manner to separate all the other rays, leaving only the violet, the most refrangible. This deserves to be tried, not only to satisfy pure curiosity, but also because from the point of view of germination we will arrive at important results.

"This violet tint has I know not what, melancholic and depressive, which physiologically depresses the mind. It is without doubt for this reason that poets have clothed melancholics with violet garments.

"Perhaps the violet light calms nervous excitement with the unfortunate maniacal. And as physically nothing can assure success unless it acts physiologically, it seems proper to attempt the experiment.

"It is necessary, first, to be assured of the quality of the glass most proper, the best fitted to receive the sun's rays. For this it is necessary to cause a solitary ray to pass across a prism, and with this same ray take some photographic proofs.

"The walls of the chamber which serve for the experiments should be painted of the same color as the glass we place in the windows. In order to favor the action of the solar light we should have the greatest possible

> number of windows so arranged that they will receive directly the rays at different hours of the day.
>
> "In order to execute this advice scientifically, I would propose that you cause the insane who are submitted to this experiment to be placed in chambers adorned east and south with walls colored to represent the glass, and of the same size."

Those having a knowledge of the properties of light will readily understand this, and the application made by Dr. Ponza which he here reports. We add, light, as emitted from the sun, is apparently white. White light may be separated into seven different kinds of rays or colors. When you pass a ray of light through a prism, this separation is made, those that are refracted least falling lowest. This order is as follows:

——————— Violet.
——————— Indigo.
——————— Blue.
——————— Green.
——————— Yellow.
——————— Orange.
——————— Red.

This order of the rays is preserved, no matter how you turn the prism. These rays are not all equally luminous. Wells puts this comparative intensity as follows: Red, 94; orange, 640; yellow, 1000; green, 480; blue, 170; indigo, 31; violet, 6.

He also states that red is, in battle, the most fatal color, and a light gray the least so. Soldiers are shot, according to the color of their dress, as follows: Red, 12; dark green, 7; brown, 6; bluish gray, 5.

But to return to our paper: Dr. Ponza carried out the instructions of Father Secchi. He colored the walls the same tint as the glass of the windows, and prepared, also, a sleeping-room. In these he placed a victim of melancholia, who for a long time had been depressed, taciturn, and eat rarely when left to his own inclinations. He says: "Three hours after he was installed in this chamber I visited him, and, to my great surprise, I found him smiling, gay, and he asked me for something to eat, which was soon given him." He follows with a few other cases, then calls attention to works upon light (French and German publications), but remarks that they contain no researches or observations in common with the above.

The next article is from the pen of Dr. Adrien Fevre, physician to the asylum for the insane at Armentieres, upon the "Alterations of the Cutaneous System in Insanity." It fills twenty-three pages of this number, and twenty-eight of the next. From its extreme length, we shall be able to give but an imperfect idea of what the writer presents.

He states, in an introduction, that no physician who has devoted his attention exclusively to the insane but what soon perceives an infinite variety of physical evils upon which the disorder of these unfortunates is based. Each day which passes leads to the discovery of some disorder in the functions of the organs of these individuals which astonishes the observer, and which contributes more towards raising a portion of the veil which still leaves in the shade many of the great truths of mental pathology. * * * For a long time we were engaged with the insane as with psychial disorders. Since scarcely fifty years we have extended the sphere of our observation. It is not sufficient to study psychial states; we must explore the whole field of pathology.

CHAP. I. *History.*—The Doctor says: At the onset of our career, while yet *interne* at Charente, our attention was often drawn to the numerous alterations that the cutaneous system presented with persons insane. While adjunct physician to the public asylum of Toulouse, he entered earnestly upon the labor of observing carefully the great number of skin diseases in this vast refuge of the insane. Esquirol says "the affections of the skin deserve as fully our attention, as the insane are subject to these affections." He says Torry, Slibert, Frank, cite cases in which these conditions are productive of insanity. Devergie assures us that there is an intimate connection existing between these cutaneous affections (*dartreuse*) and nervous disorders. Guislain, Bazin, Marcé, Vulpian and Charcot, Herard, Bilrod, Depouy, Arthand, Lombroso, Baillarger, Lunier, and others he names, are engaged in investigating this subject. Among these are Hebra, of Vienna, and Gigot-Suard, whom he cites as authority for the relation existing between skin diseases and insanity. He defines the word *dartreuse*, which he uses often, to be synonymous with *herpes*.

CHAP. II. *Description and Symptomatology.*—The skin, he says, has not, as every one knows, with the insane, the proper hue of health, and varies according to sex, age, temperament, climate, and profession. In insanity the skin undergoes a general alteration, and can assume forms, aspect, and color the most varied and diverse. He devotes several pages to the forms peculiar to the various forms of insanity. He has observed with the insane boils and carbuncle, erythematous patches, herpes, pityriasis, eczema, impetigo, psoriasis, pemphigus, ecthyma, erysipelas, and the different varieties of acne. He saw in the asylums but one case of icthyosis, and one of elephantiasis grecorum.

Writers have regarded skin diseases as a prolific cause of insanity. Many distinguished writers regard the insanity as the result, and not an attendant or accidental complication. When insanity precedes, as it so often does, the appearance of the cutaneous disorder, they regard it due to *suppression* of the skin disease. But these diseases are observed where there is no insanity. Insanity is often the expression of the general condition of the nerve centers, as are also these affections—the one showing the influence upon the intellectual, the other those which preside over vegetative processes.

Chap. III. *Development and Course of Cutaneous Affections with the Insane.*—Dr. Fevre says of the development: We have a firm belief that the affection of the skin is consequent upon the general affection of the nerve centers. He does not agree with those writers who make the mental trouble secondary to the cutaneous. This seems to me correct. As well might we declare the sloughing and bed sores of some forms of disease their cause, as to regard an affection the *result* of diminished vitality the cause of such loss of vital power.

The Doctor regards the seasons as bearing some relation to these affections, spring being a period of greatest frequency.

Chap. IV. *Cause.*—Many writers, says our author, attribute as causes of the cutaneous affections bad hygienic conditions of asylums. He says this is not true, for we encounter them with rich and poor, with those well cared for and the opposite. Bad hygienic conditions, no doubt, nevertheless, facilitate the development of cutaneous diseases. He then speaks of climate, season, sex, *heredité*, the variety of insanity, condition of the nervous system, as sympathetic influences, etc.

Chap. V. *Treatment.*—Nine pages are devoted to general observations upon this part of the suject. He speaks of cataplasms, as of flax-seed, flour, or starch; also, of a pommade of calomel in cases of furuncles and anthrax; liniments, oils, collodions, washes, baths, alcoholic lotions, lotions of potassa, chloral, etc. Internally, arsenic, tonics, etc. Nothing being suggested more than what has been employed by the profession in similar cases, we make no lengthy abstract.

Under the head of Medicine Legale is a report of a case of alcoholism, with ideas of persecution and incipient demency: Guerard Nicolas, by Drs. Sisteray and Delaporte, of the Asylum of Mareville.

Next follows an article by Dr. Anzouy, of the asylum at Pau, upon allowing insane to depart from the asylum as an experiment, where the cure is apparent, permitting the return without formality upon the return of symptoms of insanity.

We have also a report of the Medico-Psychological Society. The general secretary presented, at the session of November 15, a work by Dr. Seguin, of New York, upon *Clinical Thermometry*. Other works, journals, etc., were presented. Sixty-eight pages are devoted to the transactions in this number, and thirty-one of the March number.

Abstracts and reviews close both numbers. These are of German, Italian, and English journals and foreign works. We notice the name of Dr. Hammond, of New York, as author of a pamphlet received.

The March number contains as its first article a "Contribution to the Study of Tuberculosis with the Insane," by Dr. Cullerre, of the asylum at Auxerre. He says this disorder has caused, for many years, from 20 to 25 per cent. of all deaths in the asylum of Auxerre. Divers observers give the proportion as 1 in 10, 1 in 8, 1 in 6, 1 in 5. Dagonet found of 428 deaths 109 were due to consumption. The principal form is chronic pulmonary tuberculosis. He gives reports of fourteen cases with post mortem observations. He sums up as follows: In general, tuberculosis has no influence upon the course of insanity, it having, in general, reached demency before the development of tuberculosis.

This number contains an article (seven pages) upon *Spontaneous Troubles of the General Sensibility*, by Dr. Taguet of the Ville-Evrard. Five cases are detailed with observations.

Also, this number contains a report of "the Mental State of Louis Cerard," an imbecile accused of arson.

The German medical journals for the last quarter contain many valuable articles. Two numbers of the Archiv für Psychiatrie und Nervenkrankheiten have been issued. The first contains 352 pages, with five fine plates with fifty-three figures, illustrating articles, some of which are skillfully colored. The second number begins with page 353 and closes with 626. It contains three plates with numerous figures. They contain articles from Remak, Meyer, Leyden, Frey, Nothnagel, Guttman, Westphal, etc.

In the next number of this journal we shall present a lecture delivered at Starling Medical College: An Analysis of the Human Mind, *i. e.* its Departments and Faculties, as a classification and diagnosis of insanity. This will be followed by one upon the Classification of Insanity, in which the various classifications are reviewed, whether of those who classify by causes, as Skae and Morel, or by symptoms, or supposed pathological conditions.

D. A. MORSE, London Ohio

WANTED,

The following numbers of the old Ohio Medical and Surgical Journal: Vol. 7, No. 2; Vol. 5, Nos. 3 and 4; Vol. 4, Nos. 1 and 5. Fifty cents each will be paid for the above numbers, on application to Dr. J. H. POOLEY, 117 East Broad street, Columbus, Ohio.

REPORTS OF SOCIETIES.

CENTRAL OHIO MEDICAL ASSOCIATION.

REPORTED BY OTTO FRANKENBERG, M.D., COLUMBUS, OHIO.

A stated meeting of this Association was held April 6, 1876.

Dr. Norman Gay was elected President *pro tem.*

Dr. Dunham, of Columbus, read a paper on Hysteria. He remarked that the etiology of this affection was obscure, inasmuch as the exact changes that take place in the nervous system are not known. As is well known, it most frequently occurs in females, not because it is always owing to derangement of the generative system, but also on account of their more highly impressible nervous system. In regard to treatment, the Doctor dwelt mainly upon the hygienic and psychological management of these cases. The mode of living should be changed; the more out-door life the better. A simple plan of treatment thoroughly carried out is the best. No definite line of treatment can be laid down as applicable to this disease beyond the hints referred to. Each case must be treated on its own merits.

Dr. Wirth said the subject was one of equal intricacy and importance. The greatest care should be exercised in searching for the possible cause, which perhaps may be more often found than in our indolence we are apt to imagine. He made the inquiry whether or not hysteria was more common among American women than among foreigners. Certainly the education of our women needed a change; it should be more adapted to improve the physical strength; it is too artificial; as a rule, more common sense and less straining after mere accomplishments would be a gain in every way. Sometimes young physicians were sorely puzzled to make the diagnosis of hysteria, but when one had been some time in practice he learned to recognize its features, even though he might not be able to describe them. It was among the plagues of a doctor's life. He would rather treat a fracture than a case of hysteria.

Dr. Hamilton, of Columbus, then presented tumors that he had removed, involving the female breast. The greater number of these were classed among the carcinomata. The Doctor said that he had operated forty-six times for the removal of cancer of the breast during his time of practice, and eight additional times for different causes. These operations did not always involve the removal of the entire gland. If this was not done, the operation was always a more troublesome and difficult one to do. On several occasions the amputation was done simply for relief, and to abate the horrible smell present in some cases, and not with any hope of prolonging life. At different times a second operation on the same patient was had, with results that he thought would justify the proceeding. Most of the cases presented the ordinary history of cancer which is so well known; and it would, therefore, be superfluous to give it in each case as related by the Doctor.

One remarkable case, however, is of sufficient interest to justify a more detailed account. An old lady of about sixty years of age, in whom the tumor was in existence for thirty years. Before the operation was permitted it had grown to an enormous size. She then consented to have it removed because it was in the way. The tumor was removed in this manner: It was raised off the pectoralis major by traction, a large amputing knife was used in transfixing it; cut out; then the knife was reversed, and the operation was completed in about forty seconds. This patient made a good recovery. The conclusions the Doctor arrived at are that the operation should be performed in all suitable cases giving any chance of prolonging life or of relieving suffering, but should not be done where the disease is hereditary and the axillary glands are involved.

Another case of special interest was that of a woman who was the mother of four children. Soon after marriage one breast began to enlarge; during lactation became less in size. When the tumor was removed, it weighed six pounds, and had all the characteristics of a galactocele—milk, butter, and a cheesy substance was found on section.

CENTRAL OHIO MEDICAL ASSOCIATION.

A stated meeting was held May 4, 1876. Dr. Nourse, President, in the chair.

Dr. S. Loving read a paper on the art of prescribing, tracing the history of this art from the Egyptians down to the present time in a manner that does credit to this important subject, and, at the same time, shows that he has devoted considerable time and study to it, enabling him to handle it with a masterly grasp. The salient points of the paper were: 1. To write a legible hand. 2. Write names of the ingredients in Latin or English. 3. To be careful in using abbreviations, using only such as are perfectly understood. 4. To be careful in designating the quantity ordered. 5. The directions to the druggist and to the patient should always be written in English. The Doctor in his paper took exception to the common practice of prescribing patent medicine and secret nostrums as being entirely below the dignity of the profession.

Dr. D. A. Morse, of London, read a review of the opinions of Dr. Hammond and others on cerebral anæmia and hyperæmia, stating some facts that will assist in making the differential diagnosis between these two conditions. In a case of pneumonia that came under his notice, the patient complained of neuralgia, and was one of those cases that did not bear tonics well, but gave opium on the supposition the hyperæmia was present, and that the drug acted as a stimulant in producing contraction of the muscular walls of the vessels.

Dr. Wirth, of Columbus, read a paper on the non-identity of pseudo-membranous croup and diphtheria, taking the same side with those that are opposed to the opinion of their identity. The paper was a lengthy one, but written with great care. Evidently the Doctor was thoroughly imbued with its importance; for the facts advanced in support of his opinion were such as could not well be gainsaid, basing his theory upon pathological facts as taught by our best pathologists. He did not, however, deny that there were arrayed upon the other side some very good men, who were entitled to consideration.

Dr. Hamilton presented a fibroid tumor, in size about that of a healthy uterus, which had been really mistaken for an inverted uterus by the physician who had had charge of it. The Doctor found on examination that the tumor was attached by a pedicle to the os uteri. At a later date the patient was placed under ether for the purpose of having it removed, which was done by an ecraseur bent at an obtuse angle. The tumor could not be removed from the uterus without some difficulty.

Dr. Pooley said that he had seen a similar case in New York, which had been in his charge about one year, hemorrhages occurring now and then sufficiently alarming to necessitate an examination. The os was gradually dilated with sponge tent, when a tumor was discovered, fibroid in character, and of considerable size. The uterus was dragged down, near the vulva, the ecraseur was applied, and the tumor severed. Thus far the operation presented no very great difficulty. In order to remove it, it became necessary to cut it into three pieces, and nick the os in several places before this could be accomplished. The Doctor said if it became necessary to facilitate an operation, he would not hesitate to drag down the uterus. Very rarely, indeed, did bad results follow this procedure.

COLUMBUS ACADEMY OF MEDICINE.

COLUMBUS, OHIO, *May* 19, 1876.

Dr. Thompson, President, in the chair.

Dr. Pooley presented a pathological specimen, which had been sent by S. D. Turney, of Circleville, taken from an old lady of eighty years. The patient had been seen by Dr. Pooley in consultation, and at the time had made a diagnosis of cancer of the cardiac orifice of the stomach, basing this upon the facts that after swallowing any thing regurgitation always followed, and pain was complained of in this region. A stomach tube was also introduced into the œsophagus, which was also arrested, according to external measurement, at about the cardiac orifice. The specimen, however, disproves the diagnosis, at least in regard to the location of the stricture, this being from two to three inches above the cardia in the œsophagus. This obstruction was caused by a hard swelling, extending completely around the œsophagus, one inch across; the center was scooped out, irregularly, by an ulcerative process. Examined with a microscope, shows it to be epithelial cancer. Dr. Pooley believed in the feasibility of gastrostomy, and it would have been recommended if the diagnosis had not been made erroneously. There was also present fatty and calcareous degeneration of the aorta and several of the smaller branches.

Dr. Baldwin reported a case of Bright's disease, in which symptoms were general anasarca, respiration forty per minute, urine was diminished, containing hyaline cast, pus, and albumen; the skin had burst in different places, permitting oozing of the fluids.

Dr. Hamilton related a case, that of a woman, forty-six years of age; married, no children; tall and lean: descended from a healthy stock. Six years ago there appeared a small tumor over the seventh rib; three years ago this began to increase; and at the present time it measures eighteen inches in a horizontal direction by thirteen in a perpendicular one, and springing from a surface of about four inches, involving the twelfth, eleventh, tenth, ninth, eighth, and seventh ribs; hard and unyielding as bone. Upon the surface were a number of elevations, some sharp as needles, others blunt. The Doctor thinks that it could be nothing but an exostosis; no positive assertion could be made, as the patient would probably live to a good old age.

Dr. Hamilton said that on last November he performed an operation for the removal of cataract in an old lady of eighty years, and that some cortical substance had been inadvertently left behind. This commenced to swell soon, and threaten iritis; but, after remaining for four months, absorption began to take place, and at the present time all had been removed, and sight restored by aid of the proper glasses.

He also related the following: A man had received a compound fracture of the right-ankle joint, with great injury to the surrounding soft parts. In making an examination with the finger, found a loose bone, slightly attached. These were severed, and the bone removed; this proved to be the astragalus. The parts were then brought into apposition and kept so, as he had concluded to make the trial of saving the limb. A good recovery took place. He is now able to do ordinary work, showing but slight indications of weakening of the joint, with hopes that he will still further improve.

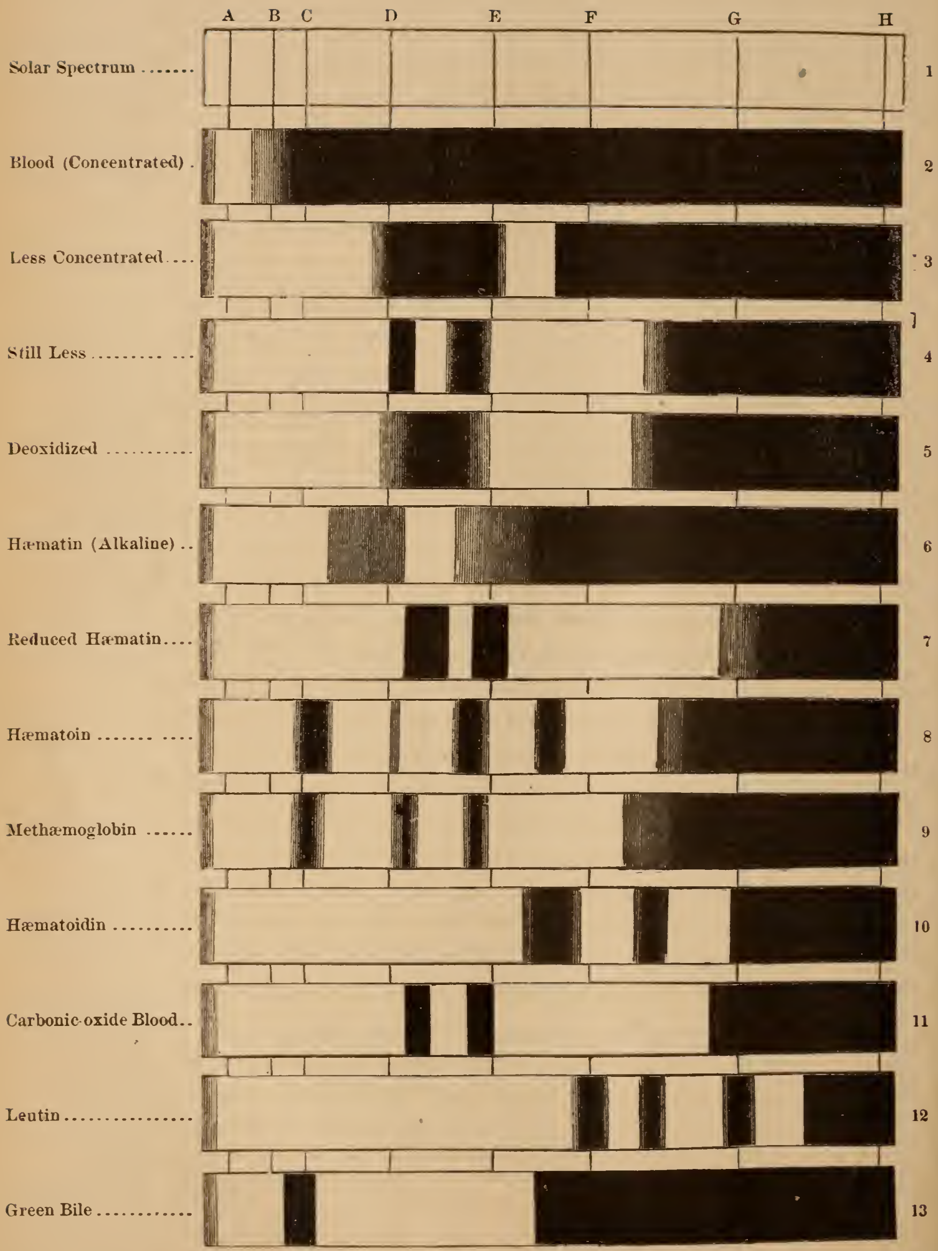

CHART OF SPECTRA.

OHIO

MEDICAL AND SURGICAL JOURNAL.

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ORIGINAL COMMUNICATIONS.

ART. I.—* *The Spectroscope: its Value in Medical Science.* By GEORGE B. FOWLER, M.D., Examiner in Physiology, College of Physicians and Surgeons, New York; Visiting Surgeon to the New York Dispensary, etc. Read before the New York Academy of Medicine, April 20, 1876.

In 1670, or thereabout, Newton discovered the compound nature of white light. That is, he found that when a beam of pure sunlight is allowed to pass through a prism, it undergoes two changes. First, the direction is altered, or the rays are refracted; and, secondly, it is no longer white light, but broken up into seven distinct colors, each merging imperceptibly into the other, and arranged in the following order: red, orange, yellow, green, blue, indigo, and violet.

According to modern science, the reason for this order of colors is found in the theory that luminous bodies impart to the ether waves of different lengths, and while passing through a prism the short waves are most retarded and the long ones least. Now, violet light is composed of short waves and red light of long ones. Therefore the violet is most retarded or bent, while the red pursues almost a straight course through the glass. The red and violet are consequently at each extreme of the spectrum, while the other colors arrange themselves according to their comparative wave lengths.

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* This paper, which was printed in the Transactions of the New York Academy of Medicine, appears also in this Journal, in accordance with a by-law of the Academy permitting such separate publication, at the option of writer.

In 1802 Dr. Wollaston, of England, announced that the solar spectrum was not a continuous one, but was interrupted by a great many very fine, dark lines. Some years later—1812—a German physicist, Frauenhofer, investigated the character and positions of these remarkable lines, and found them to be constant and invariable in location. To the most prominent he applied the first eight letters of the alphabet, A, B, C., etc., and to-day we speak of Frauenhofer line, B or E, or any particular one, to denote the region of the spectrum to which we wish to call attention. (See fig. 1.)

The significance of these lines remained a secret until 1814, when Kirchoff, in Heidelberg, made the startling announcement that they were due to the absorption of certain rays by the atmosphere surrounding the sun. He showed that if a metal be made incandescent, and its light passed through a prism, there would appear a number of bright lines in the spectrum, corresponding in position to some of the dark ones of the solar spectrum. Take, for example, the metal sodium, or any of its compounds, and placing a small quantity upon the end of a platinum wire, subject it to the flame of a spirit lamp, immediately the entire flame is yellow with the incandescent sodium vapor. Permit the light from this vapor to pass through a prism, and we will see a very fine, bright-yellow line running vertically across the spectrum in the *yellow*.

Having noted the exact position of this line, remove the sodium flame and substitute a beam of sunlight. The beautiful, full spectrum now appears, and just exactly where the yellow line of sodium existed is situated the dark Frauenhofer line D. Here, then, was a striking coincidence of location, and regarding the phenomenon as something not to be overlooked, Kirchoff at first theorized and subsequently proved the dark line at D in the solar spectrum and the bright line at D in the spectrum of incandescent sodium to be identical, due in each case to the presence of the vapor of the metal sodium. This is the way he arrived at the conclusion: He first saw that in the light of the sun the D line was *dark*, while the glowing sodium gave a *bright* line. The thought occurred to him that the conditions were reversed, and he proceeded to experiment accordingly; and, without going too much into details, finally established the fact that *when the metal is itself luminous, or the source of light, the lines in the spectrum will be bright, but if the source of light be beyond the vapor of the metal the lines will be dark.* In other words, if we volatilize sodium in *front* of a bright flame, and cause the light from the flame to pass through the vapor before entering the prism, the sodium line is *reversed*, it is dark. And so for other metals. Upon these experiments is based the present theory regarding *the constitution of the sun.**

The delicacy of spectrum analysis in detecting metals varies with different ones. Of sodium, one two-hundred millionth of a grain will bring out the bright line at D; of lithium, one sixty-millionth; and of calcium, one one-millionth of a grain is sufficient to produce the characteristic effect.

It has been for some time observed that if the beam of light employed were permitted to pass through a colored fluid, before or after entering the prism, certain marked changes were invariably manifest in the spectrum. First, the most refrangible end (violet and blue) is entirely absorbed; and, secondly, one or more isolated dark bands of absorption are seen in the other colors, the same coloring matter giving definite and invariable absorption.

Very naturally, physiologists caught the idea, and soon resorted to spectrum analysis in the cases of the colored animal fluids, blood, bile, and urine.

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* That it is an intense mass of luminous matter in whose composition the metals play certainly an important part, and being constantly volatilized by the great heat, are present in the atmosphere of the planet and absorb certain rays, according to the law established by Kirchoff, *that metals in a gaseous state are opaque to those rays which they themselves are capable of emitting when incandescent.*

A brief description of the spectroscope, and a few words concerning its technology, are in place at this stage.

Spectroscopes are of various patterns and degrees of complication. A convenient form is made by Browning, of London. There is a narrow slit, regulated by a screw, through which the beam of light is admitted to the collimator tube. At the other end of this tube is a convex lens, which collects the rays and sends them parallel to the prism. Here they are bent and broken up into the various colors, and are finally collected and magnified in the observing telescope. The observing telescope is arranged in such a manner as to allow of its rotation horizontally around the stand. This movement brings the different parts of the spectrum successively into view. The eye-piece is provided with two very small wires crossed in the center of the field. These wires are a portion of the measuring apparatus. When the position of a line or band is to be ascertained, the point of decussation of the wires is placed exactly over the object in such a manner that the reëntering angles shall be equally divided by it. Reference is now made to a graduated scale upon the circular top of the stand and to a vernier scale sliding upon it and attached to the observing telescope. The position of the sun lines having been previously determined, it is easy to ascertain the location of absorption lines. Vierordt, a writer upon absorption spectra, proposes a very simple and convenient measuring method.* He considers the spaces between

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* *Die Anwendung des Spectral Apparates zur Photometrie der Absorptionspectren. Tübingen,* 1873.

There are several other scales in use, but they require an additional tube than is possessed by the simple instrument already described. In this tube there is a scale photographed upon glass, and so adjusted and illuminated that it is seen with the spectrum. This extra attachment the fixed lines, A, B, C, etc., as divided into one hundred equal parts, and then indicates the position of an absorption band by the expression of its distance from any one of them. As C 50 D. But I fail to see the use of writing "D." So, with the exception of writing *the following letter*, this method will be employed in this paper.

I propose to speak of the fluids separately and in the following order: *Blood*, *Bile*, *Urine*

BLOOD.

The coloring matter of the blood has been given a number of different names within the last ten years, which has created considerable confusion, particularly among those who are not especially interested in physiological chemistry, and have not followed the discussions on the subject. We see it called hæmatin, hæmatoin, hematosin, cruorine, hæmatocrystalin, hæmoglobulin, and hæmoglobin. Berzelius suggested the term hæmatoglobin. Hemaglobin is employed by Hoppe-Seyler and the Germans, and will be used in this paper. Of some of the others we shall say more further on.

Hæmoglobin has the chemical composition $C^{54.2}H^{7.2}O^{21.5}N^{16}Fe.^{42}S.^{7}$, and is a crystallizable substance. It was first obtained pure by Kölliker* in 1849 from the blood of the dog and fishes, and very soon afterwards, 1851, by Funke† in the blood of man and the horse. The crystals are procured with variable success in different animals. The blood of dogs and guinea-pigs seems to yield them with greater certainty.

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involves greater expense, and I must say that I have found the method described in the text to be perfectly satisfactory for physiological work.

See "A New Method of Determining the Position of Absorption Bands," etc. By J. C. Dalton, M.D. Trans. New York Academy of Medicine, 1874.

"On a Definite Method of Qualitative Analysis of Animal and Vegetable Coloring Matters." By H. C. Sorby. Phil. Mag. (4th Series), XXXIV.

[*] Microscopical Anatomy. Phila. Ed., 1854, p. 714.

[†] "De Sanguine Venæ Lienalis." Lipstadt, 1851.

They possess the same spectroscopic properties as a watery solution of blood, which is much easier to obtain.

Pure defibrinated blood is perfectly opaque in any appreciable volume, and is not suitable for spectroscopic work. But when a small quantity of water is added the corpuscles are deprived of their coloring matter, which is perfectly soluble in water, and what is left of the albuminous corpuscle is practically transparent. So that we now have a tolerably pure solution of hæmoglobin, more or less translucent according to the degree of dilution.

Suppose we take a cubic centimetre of pure defibrinated ox-blood, and, diluting it with an equal volume of water, place it before the slit of the spectroscope. We shall find every thing dark with the exception of a narrow band of bright red. While the eye is still at the instrument add, very gradually, more water, and observe the remarkable change. By degrees the red band grows wider, then the *orange* appears. A very slight additional dilution will permit the *green* rays to pass, and now the appearance is that represented in fig. 3 of the chart. The *red*, *orange*, and a portion of the *yellow* showing at one extremity of the spectrum, and a dark, broad band, with its edges well defined, separated from the darkness of the other extremity by a band of *green* light. The position of this band would be indicated by saying that it commenced at about D and extended to about E 10. (The position of all absorption bands is more or less affected by concentration of the solution and the thickness of the layer through which the light has to pass.) This, then, is the spectrum of what we should call a pretty concentrated mixture of blood.

Proceeding now to dilute with water, very carefully, another change will take place. Gradually the light appears in the rest of the *green* and the beginning of *blue*. But note the singular operations at work in the broad dark band. It has been divided by a strip of yellowish green, and now we have two absorption bands. The first narrow, dark, with sharp-cut edges, situated at the right of D; the second broader, its borders blurred and placed just on the left of E. *This is the characteristic spectrum of oxygenated hæmoglobin*, that to which Hoppe-Seyler first called attention.* (See fig. 4, chart.)

It is possible to carry the dilution to a surprising extent before these bands disappear. As water is further added the entire spectrum gradually clears up, interrupted only by the very indistinct and shadowy remains of the two original bands. And it is interesting and important to observe the greater persistence of the first, for when its mate has quite vanished it is still to be seen.

Hoppe-Seyler thought that these phenomena would be of great assistance in ascertaining the nature of the coloring matter, and enable him, perhaps, to follow it through its decompositions to the bile and urine, the color of which fluids have been thought to be due to altered hæmoglobin.

He found that alkaline carbonates and caustic ammonia did not affect the spectrum, that is, did not alter the hæmoglobin, but that acids and fixed caustic alkalies decompose it with an accompanying change in the spectrum; but more of this hereafter.

† Professor Stokes, of England, attracted by Hoppe-Seyler's paper, pursued another path of inquiry.

So much having been said about the difference in color between arterial and venous blood being due in the one case to the presence of oxygen and in the other to its absence, he sought the aid of the spectroscope in the matter, and performed the following experiments:

Taking a solution of ox-blood which showed the two bands (fig. 4), he desired to find out whether they were in any way due to the presence or absence of oxygen. He therefore added reducing agents which would appropriate any free oxygen in the solution. Ferrous sulphate, to which a little tartaric acid had been added, and then made alkaline with ammonia, was generally employed. (The agent was to be used with an alkaline fluid, and the tartaric acid is put in to prevent a precipitation of ferrous carbonate.) When a little of such a deoxidizing substance is added to our blood solution, the first thing noticed is a darkening of color, recalling the hue of venous blood. But for us the most important change has occurred in the spectrum. Placing the altered blood before the slit of the spectroscope, we are confronted with a remarkable change. Our pair of distinct bands have disappeared, and a single dim, broad band is seen, commencing at about D 10, and extending to D 90. The spectrum has also become visible as far as G (fig. 5, chart).

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* Virchow's Archiv., xxiii., 1862, p. 446.

† Proceedings Royal Society, xiii. volume, 1864.

Stokes reasoned that this must be the spectrum of reduced blood. The proof was simple. Shake the solution with air, and ascertain whether the single band will give place to the original two. It does, and the reduction and oxygenation may be repeated until the color of the reagent begins to interfere with that of the blood. It was ascertained that these changes were not due to the color of the reagent employed, as others perfectly colorless gave the same result.

Stokes also found that if a full bottle of oxygenated blood solution be tightly stoppered and set aside for about twenty-four hours, at the end of that time the color will have changed to that of our reduced hæmoglobin, and the same change in the spectrum will have been effected. Agitation with air will restore the red color and the bands of oxygenated hæmoglobin.

These phenomena are very interesting, and are indeed, as proved by Professor Stokes, the analogues of what takes place in the blood in the living body. The äerated hæmoglobin represents arterial blood, and reduced hæmoglobin venous.

Stokes's conclusion is "that the coloring matter of the blood is capable of existing in two states of oxydation, distinguishable by a difference in color and a fundamental difference in their action on the spectrum. It may be made to pass from the more or less oxygenated state by suitable reducing agents, and recover its oxygen again from the air."

But it is important to mention here that venous blood, as it exists in the circulation, does not give the spectrum of venous hæmoglobin. Dr. Sharpey, of London, has demonstrated this fact, and we have repeated his experiments. In order to demonstrate this, it is of course necessary to render the blood transparent; but the addition of water is equivalent to äeration. Therefore we must employ water from which all the air has been expelled by boiling in vacuo.

A glass syringe having been filled with this water, the nozzle is inserted into a vein and a few drops of blood drawn up. The solution thus contained in the glass cylinder is placed before the spectroscope for examination; and as before stated, venous blood under normal conditions gives the two bands of oxygenated hæmoglobin. This is only another of the wise arrangements of Nature where she provides against sudden arrests of respiration proving instantaneously fatal. These experiments prove that there is sufficient oxygen in venous blood to bear another circuit or so, and to meet the demands of nutrition. But suppose oxygen is prevented entering the lungs for a longer time, or is permanently prevented, or is displaced from the blood by other gases, what should be the condition of venous and even arterial blood regarding oxydation then? Under such influences it has been found to be completely deoxidized, and to correspond spectroscopically with Stokes's reduced hæmoglobin (except in case of displacement by some gases, where we have other characteristic spectra). Of course, after the residual air has been exhausted from the lungs, the arterial blood will not differ from the venous.

A. Schmidt* has found that destruction of the medulla oblongata and death by blows upon the head will enable one to see the broad band of reduced hæmoglobin in the blood of the animal. These are only modes of suspending respiration while the circulation is still maintained. In fact, all of these phenomena may be studied upon the living animal with the circulating blood. We have simply to employ a transparent living membrane, such as the web of the frog's foot, in the place of our blood solution. Then, although the picture is somewhat indistinct and mottled, on account of the interruption of the light by the tissues, the hæmoglobin bands are easily discerned; and, what is still more important, give place to the single reduced band if respiration is arrested.

We have already seen that it will occur in a solution of blood which is simply allowed to remain at rest protected from the air; and Schmidt, in the course of experiments just alluded to, with a view of determining the reducing power of different tissues upon blood, gives the following results:

If he exposed a muscle of a frog in blood outside of the body, and produced continuous tetanus, the oxygen was disassociated quicker than by a muscle at rest, but not so rapidly as by a dead muscle. Brain and liver substance reduced a watery solution very rapidly, the solution being at 0° C. The phenomena presented by the full bottle show that the blood itself contains substances, the nutritious matters, which have a great affinity for oxygen, but are not capable of appropriating it so rapidly as the coloring matter, and must needs be in longer contact with it in order to be oxidized. And the experiments of Schmidt demonstrate that the tissues are capable of producing the same change. In the hæmoglobin, oxygen is in a state of *physical admixture* in the other ingredients of the blood, and in the tissues it is *chemically combined.*

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* Centralblatt, 146.

That oxygen is very loosely combined with hæmoglobin is shown by the displacing power of various gases upon oxygenated blood, and by the results of submitting it to the air-pump.*

SPECTROSCOPIC EFFECTS OF GASES AND REAGENTS UPON BLOOD.

Carbonic Oxide, CO.—When a stream of this gas is passed through äerated blood, the oxygen is displaced and the carbonic oxide unites with the coloring matter in equal volume.

Before the spectroscope carbonic oxide blood shows very interesting peculiarities. We have two about equally wide and dark bands, situated in the yellow, between D and E. To the unpracticed eye they might seem identical with the bands of oxy-hæmoglobin. But these latter do not bear so close a resemblance to each other as those now under consideration, and are situated further towards the blue.

The distinguishing feature of the carbonic oxide bands, however, is to be found in their behavior with both reducing and oxidizing agents. *Neither of these affect them.* But if the solution be allowed to stand for several days at an ordinary temperature, these bands disappear, and the broad band of reduced hæmoglobin is substituted.

Hoppe-Seyler first showed that blood in combination with carbonic oxide would not be affected by reducing agents, and Dr. Gamgee† found that carbonic oxide would produce the same bands after reduction had been accomplished, and even in presence of an excess of the reducing agent. He further pointed out that poisoning by carbonic oxide or charcoal fumes invariably produces carbonic oxide blood.

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* It has been found that when blood is subjected to the air-pump, its coloring matter will be deprived of its oxygen when the pressure falls to about 25 millemetres of mercury.

† Med. Times and Gazette, 1866, p. 325.

Nitrogen Monoxide, N^2O (Laughing-gas).—The effect of this gas upon blood is to produce an intense red color. There is, however, no change in the spectrum, and reducing agents will cause the broad band of Stokes to appear.

Carbonic Acid Gas, CO^2, simply displaces the oxygen, and shows the spectrum of reduced blood.

POISONS.

Preyer has experimented upon blood with a great variety of reagents, with most of which he obtained characteristic spectra. It is only necessary to mention a few to show that we have a valuable aid in the spectroscope in detecting these agents. (Harley* also, it may be mentioned, has published a detailed account of researches in this direction, but with no particular reference to the spectroscope.)

Nitrites.—We are indebted to Gamgee † for very interesting reports of the action of this class of substances upon the blood. He found that "all nitrites except that of silver show some crystalline form, color, and spectrum." The blood assumes a chocolate hue under their influence, the two oxy-hæmoglobin bands becoming very faint, and another appearing at C. Ammonia causes the two bands to grow more distinct, and two entirely new ones (making three) to show themselves in the orange; the blood at the same time resuming its red color.

Oxidizing and reducing agents act perfectly with nitrite-blood. The reducing agent first restores the normal oxy-hæmoglobin spectrum, and then induces that of deoxidized, seeming to show that the nitrite super-oxygenated the blood.

Nitrites so affect the blood as to enable it to resist the action of carbonic oxide. But the loose oxygen is not destroyed or dispelled; it appears to be "simply affected in an unknown manner." Gamgee founds this statement upon the behavior of nitrite-blood with reducing agents; as we have just seen, they first restore the spectrum of oxy-hæmoglobin before inducing the reduction, without the aid of atmospheric air.

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* Proc. Royal Soc., Vol. XIII., p. 157.

† Philosophical Trans., 1868, p. 589.

QUANTITATIVE SPECTROSCOPIC ANALYSIS OF HÆMOGLOBIN.

We have seen that blood gradually diluted before the slit of the spectroscope permits first the red and next the green light to pass (figs. 2 and 3). It has been found by Preyer,* to whom we owe so much in this department of physiological chemistry, that the degree of dilution which allows the green to show itself is so constant that a sufficiently accurate method of quantitative analysis of hæmoglobin can be based upon it. The process is as follows:

A concentrated solution of a known weight of hæmoglobin crystals are placed in a glass chamber with parallel sides which are one centimetre apart. This chamber or "hæmatinometer" is now placed before the slit of the instrument, and the light allowed to pass through. Then proceed very carefully to add distilled water from a finely graduated burette, and stop the moment green light begins to show. Observe the width of the slit and the position of the light.

The solution now contains a percentage of hæmoglobin, which will always be the same under the same conditions. Let K represent this percentage.

Now if we wish to estimate the percentage of coloring matter in a specimen of blood, we have only to repeat the above process. First be sure that the conditions as to the light and width of slit are the same. Then take a measured quantity of the blood, agitate it well with air, and dilute it with a small measured volume of water. This blood solution is then placed in the "hæmatinometer" before the slit, and further diluted with water from the graduated burette until the green begins to come through. Now we have arrived at the point reached in the first experiment. A little mathematical calculation only remains to ascertain the result. $k =$ the percentage of hæmoglobin present under the given conditions. Let the total quantity of water added $= w$, and the amount of blood employed $= b$. Then we shall have the equation

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* Die Blutkrystalle, Jena, 1871, p. 121.

$$x = k \frac{(w + b)}{b}$$

DECOMPOSITION PRODUCTS OF HÆMOGLOBIN.

The coloring matter of the blood is subject to spontaneous decomposition in the body and out of it. These decomposition products can also be produced by treating hæmoglobin or blood with certain reagents. Those best known and which give definite spectra are:

1. Hæmatin; 2. Hæmatoin; 3. Methæmoglobin; and 4. Hæmatoidin.

We shall study them in the order enumerated.

HÆMATIN.—$C^{96}H^{102}O^{18}N^{12}Fe^{3}$.

Caustic Potassa.—If a solution of hæmoglobin or blood be treated with caustic potassa, the color becomes brownish, and in its spectrum we have a dim broad absorption band, commencing at C 50 and extending to D 40 (see fig. 6, chart). This is hæmatin.

It is an important fact that this substance is capable of oxidation and reduction. The spectrum just described is that of oxygenated hæmatin. Add a small quantity of the reducing agent, and once more examining the spectrum observe what has taken place. The shadowy, broad band has gone, and the *green* and *blue* rays are much less obstructed. The most striking change, however, is the appearance of two entirely new bands, the first situated at D 30, and the second on the left of E. Both are very black, and remind us at once of the bands of oxygenated hæmoglobin. But a little attention will show that they are placed further to the right, and another point of distinction is that the first band of reduced hæmatin is the broadest, and appears distinct before the second has begun to show itself (fig. 7, chart). By agitating the reduced solution with atmospheric air, these bands will disappear, and the single one of oxy-hæmatin will return. Hæmatin produced by this means was called by Stokes "alkaline hæmatin" to distinguish it from the products by acids. But it has been shown by Preyer that the "acid hæmatin" of Stokes is not hæmatin, but an entirely new substance which he calls *Hæmatoin.*

Caustic Ammonia.—Hoppe-Seyler describes hæmoglobin as unaffected by this reagent, but we have found it capable of producing hæmatin. It is true that the spectrum is not very decided in the oxygenated state, but reducing agents render the proof. We have found that a solution of blood treated with caustic ammonia placed before the slit of the spectroscope will not give any well marked band, but simply absorption of the refrangible end of the spectrum up to E. Treated with a reducing solution, the two black, sharp-cut bands of reduced hæmatin immediately appear, and what is important, they can be banished by agitation and made to reappear at pleasure by again reducing them.

Alkaline Carbonates—Regarding the action of these substances, we must again differ from Hoppe-Seyler and agree with Burdon Sanderson* and Stokes that they determine the production of hæmatin. Their action is not so rapid, requiring a day or two, nor is the first spectrum like that of either of the preceding. The reduced spectrum is, however, the same.

We treated a solution of sheep's blood with carbonate of soda, and examined it after four days, kept at ordinary temperature. It then gave the bands of oxy-hæmoglobin quite indistinctly, and another well-marked in the orange on the right of C. On the application of deoxodizing agents, all of

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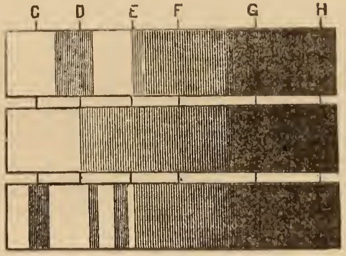
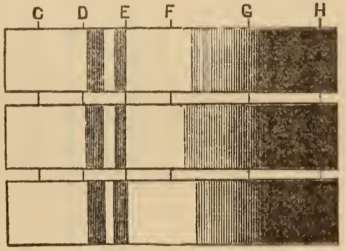
* Hand-Book for the Physiological Laboratory, Am. Ed., p. 197.

	REAGENT.	OXYGENATED.	REDUCED.	REMARKS.
SOLUTION OF BLOOD.	Caus. Potass			Can be alternated.
	" Ammo			" "
	Alk. Carb.............			Can not be alternated.

HÆMATIN.

these vanished, and the unmistakable pair of reduced hæmatin once more came boldly in view. I was not able to restore the band near C by agitation with air. Those of oxy-hæmoglobin, however, returned more distinct than before. It must have been that the transformation into hæmatin was not complete, and the subsequent manipulation so affected it as to render its spectrum invisible.

This completes the description of the methods which have produced hæmatin in our experiments.

Other reagents are mentioned by authors as determining the formation of this substance. Stokes gives, in addition, acetic and tartaric acids, alcohol, and heat. Dr. Waterman* mentions chloroform. They do not claim for these the same spectroscopic features, but say that the position and number of bands depend upon the agent used.

Thus by acetic acid Stokes describes "four banded acid hæmatin," and by a caustic alkali one band "alkaline hæmatin." Now the "acid hæmatin" was not affected by reducing agents, but being a product of decomposition of the coloring matter of the blood, he called it hæmatin. We have classed it under hæmatoin.

Therefore, instead of calling the results of the action of all the above agents *hæmatin*, it appears a better classification to recognize as this substance only those which by deoxidation show the *two bands of reduced hæmatin*, without special regard to their spectral agreement in the oxidized state, when, according to my observations, they differ with each reagent. The accompanying table will, perhaps, be useful. It illustrates the three varieties described in this paper.

It will be seen from the foregoing table that the spectrum of hæmatin formed from an alkaline carbonate is identical with the spectrum of methæmoglobin (fig. 7, chart). But there is no danger of confounding them when we treat each with a reducing agent. The methæmaglobin is unaffected, while the other undergoes the change already spoken of.

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* Med. Record, N. Y., Oct. 15, 1874, p. 532.

Hæmatoin.—When either acetic or tartaric acid is added to a solution of blood, cr its crystals, in large quantity, the formation of hæmatoin (Preyer), acid hæmatin (Stokes), iron free hæmatin (Hoppe-Seyler), is determined.

The most certain method of obtaining the spectrum of this substance is that advised by Stokes. Take a tolerably concentrated blood solution and to it add equal volumes of acetic acid and ether. Mix well but not violently, for an emulsion will form. Allow the ethereal extract to collect at the top, and, having carefully poured it off, subject it to spectroscopic examination. There will four bands appear (fig. 8, chart), one broad and plain at C, one narrow and very dim at D, a broad and well-marked one at D 75, and the last, broad, with shadowy outlines, at E 70.

We have not always succeeded in seeing the D band, and in order to do so the solutions must be varied regarding concentration, and the light delicately regulated at the slit.

I think the effect of tartaric acid alone is sometimes as satisfactory as the ether solution, and would especially recommend it to reveal the band at D.

Hæmatoin is not capable, like the foregoing substances, of existing in two states of oxidation; reducing agents do not affect it, nor does agitation with air.

Methæmoglobin.—This is a substance found in old extravasations, hydrocele, and ovarian fluids, and a product of the decomposition of hæmoglobin. It was first described by Hoppe-Seyler and named by him. The composition of this substance is not very well understood. It can be prepared in several ways. If a dilute solution of blood is kept for several days at ordinary temperature, or if very *small quantities* of any acid are added to a more concentrated specimen, methæmaglobin will form. These methods amount to the same thing in the end, for in stale blood there are acids developed, formic and butyric, which give a distinct reaction to test paper.

Examined with the spectroscope, it shows, in addition to the characteristic blood bands (fig. 4, chart), another dark band at C. Treated with reducing agents, these all disappear with the production of the single band of reduced hæmoglobin (fig. 5, chart). This is because the methæmoglobin band C depends upon an acid condition, and our reducing agent being alkaline, destroys it, and sufficient hæmoglobin is present to respond in its well-known manner.

Give the hæmoglobin time to decompose and we shall have pure methæmoglobin, which, according to Preyer*, gives a spectrum similar to hæmatoin. It would seem, then, that methæmoglobin is simply partially-formed hæmatin.

Considerable care is necessary in producing this substance with acetic and tartaric acids. A few drops of a dilute solution are sufficient to bring the C band into view. If a greater quantity is added the blood bands gradually fade, the spectrum at the same time clearing up in *green*, *blue*, and *violet*, and shortly, as in the case where hæmoglobin is allowed to entirely decompose, the four bands of hæmatoin are given. A concentrated solution of blood should be taken to begin with, and never add enough of the reagent to destroy the hæmoglobin bands.

In preparing methæmoglobin by adding acids, the position of the absorption in the orange varies according to their strength. The stronger the acid the farther toward B will the band be situated. By using stale blood and adding an excess of acetic acid the band near C does not shift, but contracts upon both sides (Preyer). We have found nitric and sulphuric acids to be equally capable of the spectroscopic characters of methæmoglobin.

Hæmatoidin.—This is another of the decomposition products of the normal blood color, first described by Everard Home in 1830, and subsequently brought to light again by Virchow in 1847. It is crystallizable, and its crystals are easily discovered in extravasated blood of the corpora lutea, apoplexy, sputa of pneumonia, and in obliterated veins.

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* Die Blutkrystalle, Jena, 1871, p. 191.

Hoppe-Seyler† states that this substance is identical with *bilirubin*;* but Preyer‡ asserts that they are distinct, in that their spectra are unlike. This difference can be seen when a chloroform extract of gall-stones is made. We then have a bright-yellow fluid, which before the spectroscope gives no well-defined absorption bands either in dilute or concentrated (bilirubin). On the other hand, a chloroform solution of a apoplectic clot or corpora lutea of the cow gives us a yellow fluid, which exhibits distinct and characteristic bands (fig. 10, chart). Very intense illumination is necessary to show this spectrum.

Leutine.—This is the yellow coloring principle which is said to exist in the yellow bodies of the ovary, in the yolk of eggs, and, according to Thudichum, in certain vegetables. It is soluble in alcohol, chloroform, and ether, and its solution presents a deciddely yellow color.

Some confusion exists as to the identity of leutine, bilirubin, and hæmatoidin. A chloroform extract of the cow's ovary, we have seen, gives the spectrum of hæmatoidin. We have failed to obtain any satisfactory results in the examination of ovary extracts and fluids from ovarian tumors. Preyer took an ovary in which hæmatoidin crystals were very abundant, and made a chloroform extract of it. Before the spectroscope only the bands of hæmatoidin were seen. But a similar extract of the yolk of egg gave an entirely different spectrum; so this observer holds that the corpora lutea contain no leutine, but hæmatoidin. As regards bilirubin, we have seen that it gives no definite bands, and therefore there is no danger of confounding it with either of the above. The characteristic spectrum of leutine is furnished by the extract of the yolk of egg (fig. 11).

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* Archiv. für Pathol. Anat., u. s. w. Bd. 1, § 383.

† Handbuch der Physiologisch und Pathologisch-Chemisen Analyse. Berlin, 1870, p. 178.

‡ Die Blutkrystalle. Jena, 1871.

Myochrome.—This is the coloring matter of red muscular tissue, and can be extracted by maceration in water. We shall then have a yellowish fluid, which, before the spectroscope, presents all the characters of hæmoglobin; carbonic oxide and other reagents affecting both alike.

BILE.

The color of the bile varies in different animals, and sometimes in the same animal, from a green to a reddish-brown. This great diversity is due to the presence of two entirely distinct coloring matters, *bilirubin* and *biliverdin.* The intermediate tints would naturally depend upon the relative increase of either of these pigments, and produce shades of green and red accordingly. It is on this account that ox bile may be perfectly green, olive, olive-brown, and reddish-brown. Other animals do not furnish quite so much variety in color. Human bile is more or less of a golden-brown, sheep's bile is green, pigs' bile is reddish-brown, rabbit's bile olive-green, dog's bile golden-bronze, etc. It was at one time supposed that biliverdin and the green coloring matters of plants were identical, but Prof. Stokes* proved, by spectrum analysis, that they are not.

It is a favorite and fascinating idea among some physiologists that these bile-coloring matters are derived from the blood—that they are products of the decomposition of hœmoglobin. Experiments on this subject disagree in a remarkable manner.

The most recent and elaborate were performed by Steiner, in Berlin, and Tarchanoff, of St. Petersburg, who worked in Hoppe-Seyler's laboratory.

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* Proc. Royal Soc., 1864, xiii., p. 144.

The object of the experiments was to determine whether, by injecting water and solutions of blood into the circulation, bile pigment would show itself in the urine. Injections of water were intended to dissolve the corpuscles and set free the coloring matter; blood solutions to supply an excess of the same; in either case to furnish favorable conditions for transformation.

Steiner, in twelve cases with rabbits, injected 10 c. c. of water at 100° Fah. into the carotid arteries; two of these showed bile color in the urine In an equal number of injections in the veins no bile color appeared in the urine, nor did the blood color come through the kidneys. The result of six experiments with 20 c. c. of water was negative. But when from 30–50 c. c. were injected bloody urine resulted, and *post-mortem* examination revealed bloody serum in all the cavities, *but no bile color.*

Tarchanoff thinks that Steiner did not take sufficient precautions, and publishes the result of his own investigations.† He used dogs, considering the slimy urine of rabbits not suitable. He also guarded very carefully against foreign matter, by inserting canulæ directly into the ureters from which to collect the urine.

The animals were freely fed with meal before the operation. A pure solution of hæmoglobin was prepared and injected into the circulation, followed by very evident bile color in the urine. Injected 150 c. c. of water, with a similar result. Steiner, he thinks, must have therefore overlooked these results in his own experiments, or, what is very probable, hares give different results from dogs.

This, then, is a glimpse of the literature of the subject.

It was thought that the spectroscope might throw some light upon the question. But, unfortunately, those who thus examined the bile said that it gave no definite spectrum.

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† Archiv. für Anat. and Phys., 1873, ii., p. 160.

A paper on the "Spectrum of Bile," by Professor Dalton,* in 1874, however, gives a new impetus to the subject; for he has discovered that there is a reliable character in the bile spectrum, which we ourselves, having repeated his experiments, can testify to, and shall proceed to describe.

Professor Dalton first describes the visible spectrum of all kinds of bile as being very short, and terminating very suddenly at or about E 45. He next states that he has found a dark, well-marked band at C. He says: "According to my own observation, it is so constant and so well marked as to form a characteristic feature in the spectrum of bile whenever it has a decided greenish tint, and often when it is of a yellowish, reddish, or olive-brown color. In eleven specimens of ox-bile, sheep's bile, and dog's bile, of a green, greenish-olive, olive, or olive-brown color, this band was visible when examined in a thickness of only two or three centimetres. In all the nineteen specimens of ox and sheep's bile which had a greenish or olive tint, when viewed in a thickness of two or three centimetres, the band at C was very distinct and often quite dark, or almost black. In the three remaining specimens, which were of a yellowish-brown or olive-brown color, it was distinct and sometimes very dark in layers of two centimetres; and in a sixth, it was perceptible in layers of three centimetres"

We have examined nine specimens of ox-bile, six of sheep, one of dog's, and one of rabbit's.

A detailed account is as follows:

Ox Bile.—Specimen No. 1. Brownish-red. Removed from the body one hour. Viewed in thickness of from two to five centimetres, showed indistinct band at C. Spectrum ends at E.

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* New York Medical Journal, June, 1874.

Specimen No. 2. Olive-green. One hour removed from body. Thickness of from two to three centimetres, very distinct band at C.

Specimen No. 3. Dark green. One hour after removal. Thickness of centimetre reveals exceedingly dark band at C. Spectrum stops at E.

Specimen No. 4. Dark green. One and a half hours after removal. Two centimetres thick gives well-marked band at C. Spectrum terminates at E 50. This specimen is so transparent that the most satisfactory thickness to employ is five centimetres, when the C band is absolutely black and sharp cut at its edges.

Specimen No. 5. Olive-green. One and three-quarter hours after removal. C band visible in layers of from one to three centimetres.

Specimen No. 6. Olive-brown. One hour after removal. Shows no sign of the band at C. Spectrum ends at E.

Specimen No. 7. Olive-green. One hour after removal. In thickness of five centimetres. The C band is distinct. Spectrum ends at E.

Specimen No. 8. Olive-green. One hour after removal. In layers of five centimetres shows C band very plain. Spectrum ends at E 30.

Specimen No. 9. Olive-green. One hour after removal. In layers of four centimetres shows band at C very distinctly.

Sheep's Bile.—The six specimens were all similar in color (dark green), and were removed from the body one hour before examination. In thickness of from one and a half to three centimetres the band at C was in every case very distinct.

Dog's Bile.—Golden-bronze color. Forty minutes after removal. Layer of one centimetre showed C band very dark and well marked at its edges.

Rabbit's Bile.—Dark green, with slight olive tint. Four hours after removal from the body. Layer of one centimetre reveals C band.

These results, added to Prof. Dalton's, cause us to wonder at the negative results arrived at by previous observers.

The only specimens in which the C band seems to be ever absent are those which have more or less reddish tint. Never in green bile have I failed to see this band (see fig. 12, chart), and it appears from these facts that the band at C is characteristic of the green element in bile. This is shown experimentally as follows: Add nitric acid or tincture of iodine to a specimen of yellow bile which does not show the C band. (These agents oxidize the solution with the effect of rendering the color green) This specimen will now give the C band. The green color is due to oxidation, and the power of oxidizing substances to strike a green color with bile has been long known, but Dalton has found that if a full and tightly-stoppered bottle of green bile, which shows the band at C, be set aside for twenty-four hours, the green color will fade and give place to an olive or brown, and will then fail to reveal the C band; subsequent exposure to the air, or addition of oxidizing agents, will restore the green color and its absorption band. This behavior is analagous to that of blood when treated in the same way.

Bile also shows several other bands, but which are not constant or well-defined in every instance. These bands seem to have nothing in common with the C band—that is, they appear sometimes in green and sometimes in brown bile. The most constant are a faint broad one on the left and a dark narrow one on the right of D.

Does the fact that bile possesses a characteristic spectrum, then, throw any light upon the question as to the origin of its pigment? Are we able to trace it to any of the products of hæmoglobin? As yet we must answer in the negative. We must await the results of investigation based upon Professor Dalton's discovery.

PETTENKOFER'S TEST FOR BILIARY SALTS.

As is well known, this is a color test. It depends upon the solution changing to a fine purple. But it has been found that there are other substances which, by treating with cane sugar and sulphuric acid, will present the same color. Such are various albuminous bodies, the salts of opium, theine, ethereal oil, cerebric acid (thudichum), amyl, alcohol, etc. But the spectroscope will decide whether the colored reaction be due to either of them or to the bile salts.

The purple reaction characteristic of Pettenkofer's test is usually too concentrated, even in very thin layers, for spectroscopic analysis. Water added with a view to dilute it only renders it still more opaque by precipitating cholic acid. But it has been found by Professor Dalton* that if a very dilute watery solution of the sodium glycocholate (1–500) be taken to begin with, subsequent dilution with water will not cause a precipitate. Therefore it is well to use very dilute solutions of the suspected substances, if they are to be placed before the spectroscope. (Should it be necessary, sulphuric acid may be used to effect the dilution.)

Pettenkofer's test in watery solution shows one broad and distinct band at E, the refrangible end of the spectrum being invisible up to G. In alcoholic solution the same band at E is seen with another, not so broad, at F. Egg albumen, treated with Pettenkofer's test, shows a broad, shadowy band, commencing at about D 60 and extending to F. The spectra of codeine and morphine are the most like that of the bile salts, showing a band at E; but this band is not near so well defined, and disappears suddenly on the addition of a small quantity of water, while in the case of the latter a considerable dilution is necessary to destroy it.

URINE.

It was expected that the spectroscope would reveal some positive information as to the origin of the coloring matter of the urine, but it is found that this fluid does not yield any satisfactory results by prismatic analysis. Ordinary urine shows no absorption bands at all, and a specimen which I evaporated from 30ʒ to 5ʒ, thereby causing it to present a very dark reddish color, still gave a negative result. But by adding nitric acid, and allowing it to stand, I have once succeeded in getting a broad, distinct band at F. This band has been seen by other observers, and because the urine sometimes shows it, there is a theory that urochrome is derived from the bile colors, in that by extracting dog's bile with hydrochloric acid we obtain a substance which gives a very similar band. Further treatment of urine and the bile extract bring about other spectral changes which give strength to the theory just stated (Sanderson).

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* Human Physiology. Philadelphia, 1875, p. 214.

Coming now to inquire into the practical worth of spectroscopic analysis, we are reminded that there is not such a distinction to be made between the two terms, "scientific" and "practical," as is generally accepted. The fact is we never know how very practical a very scientific discovery may at any moment become. It was a scientific course of experiments which preceded the practical use of electricity. The investigations of Goodyear and others into the properties of India-rubber were strictly scientific, and led to the most practical results. And so of almost every useful invention.

Now, physiological spectroscopy is in its infancy, and we may reasonably look for important practical results within the near future. Let us see what it has already accomplished. Stokes's experiments have materially added to our knowledge of the respiratory processes, showing conclusively that the function of the red coloring matter of the blood corpuscles is to absorb, convey, and deliver oxygen; that the difference in hue between venous and arterial blood is due simply in the one case to the absence, and in the other to the presence, of oxygen.

But it is in the field of forensic medicine that we shall find the spectroscope of absolute use. The detection of blood by the microscope depends upon the presence of the corpuscles. But these elements are very easily dissolved or otherwise rendered unnatural. Here the microscope would fail, but the spectroscope will reveal reliable signs, as we have seen that even the decomposition products of hæmoglobin give characteristic spectra.

Specimens of blood, wet or dry, kept for long periods, undergo changes which render the microscope useless as a means of detection; but spectroscopically the presence of blood can be absolutely proved. For instance, dried blood (on rags, wood, glass, etc.), kept for some days, turns brown. It is practically insoluble in water, and in order to subject it to examination we must dissolve in a weak acid. This at once destroys the corpuscles, and the microscope is valueless; but by prismatic analysis we see the two hæmoglobin bands, and, in addition, one at C. It is either methæmoglobin or hæmatoin. Treatment with reducing agents will determine which, and absolutely prove the presence of blood. The broad band of reduced hæmoglobin will appear if it is the first; if the second, they will have no effect. Letheby and Sorby examined stains on linen seventeen years old, and the spectra were in every respect characteristic. We have a specimen of pure sheep's blood which has been kept at ordinary temperature more than a year. The corpuscles have disappeared, it is swarming with infusoria, and the microscope can furnish no proof that it is blood, examined as it stands; yet it shows the absorption bands of hæmoglobin, and reacts perfectly well with deoxidizing substances. Benoit* speaks of a similar observation. Sorby kept dried blood (on rags) exposed to the air, and found that it was converted into methæmoglobin with different degrees of rapidity, according to the locality. In towns and in inhabited rooms the change took place sooner than in the country well removed from houses. He also found that dried stains sealed in tubes required three months to change; if sealed wet they did not change at all (Cited by Letheby.*)

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* Etudes Spectroscopiques sur le Sang, 1869, p. 60.

Some vegetable and animal coloring matters may confuse us at first, but the application of oxidizing and reducing agents will give conclusive evidence of the presence of blood.

Substances most likely to be confounded with blood-color are, an ammoniacal solution of carmine and solutions of iron sulphocyanide. These, when placed before the spectroscope, show such different absorption as to enable one readily to distinguish them from blood and from each other. An important test for vegetable colors is ammonia. I believe there is not an instance where this reagent does not markedly change the hue, while it has little or no effect upon blood.

Regarding the question, Does prismatic analysis enable us to distinguish human blood from that of the lower animals, the answer is, It does not. The spectrum is alike in all red blood. (Hoppe-Seyler, Valentine, Bert, Benoit.)

The presence of other coloring matters does not interfere with the detection of blood. I have found that one drop of blood added to an ounce of green ox-bile gives its characteristic absorption very distinctly.

It is sufficient to call attention to what has been said of the action of gases and poisons upon blood to show how important the spectroscope would be in cases of death from any of those substances. With some of them it would be the only means of determining the cause of death, while with others it certainly would greatly strengthen the evidence adduced. The delicacy of this method of examination is very great in the case of blood.

Sorby states that 1-100th of a grain could be made to show all transformations, and he says that by a little practice 1-500th or 1-1000th of a grain can be detected.

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* Spectrum Analysis. Reports, London Hospitals and Clinics, 1866.

It is further said that with the Sorby-Browning micro-spectroscope a single blood corpuscle will show the characteristic absorption. Indeed, the first recorded case of the use of the micro-spectroscope in a murder case is where the suspected criminal was near being acquitted on account of the failure to establish the proofs that there were any evidences of blood upon a hatchet which was found in the woods near the victim, and with which, from the character of the wounds, it appeared he must have been attacked. The implement had lain exposed to the weather several weeks, and the most careful examination failed to discover the slightest traces of blood until it occurred to the expert to remove the handle. Then, upon the end which was inserted into the iron ring, a dark, reddish stain was seen. Careful sections of the wood were made, the stain dissolved in a few drops of acidulated water, and, with a 1-25th inch objective on the micro-spectroscope, this fluid showed the indisputable blood bands, and the prisoner was convicted.* Herapath † estimates that there was about 1-1000th of a grain of blood in the portion examined.

In conclusion, let us say that this is a strikingly beautiful means of investigation; it is free from the objections which chemical analyses of the coloring matters offer, viz., numerous apparatus and reagents. With coloring matters other than blood, I think its chief value, at present, is in verifying other analytical methods. But we hope by improved illumination and construction to enlarge its field and render its use even more valuable.

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* Mountain-Ash Case. Reg v. Robert Coe, Swansea Spring Assizes, 1866.

† Herapath "On Use of Spectroscope and Micro-Spectroscope in Discovery of Blood-Stains," etc. Chemical News, xvii., English edition, No. 431, pp. 113 and 224.

Art. II.—*What is the Essential Nature and Purpose of the Fever Process in Living Human Bodies?* Delivered at session of Muskingum County Medical Society, held in the City of Zanesville, Ohio, June 8, 1876, by Z. Collins McElroy, M.D., one of the Physicians to the Muskingum County Infirmary; Physician to the Home of the Friendless; Fellow of the Zanesville Academy of Medicine; Member of the Muskingum County Medical Society, of the Perry County Medical Society, of the Licking County Medical Society, of the Meigs and Mason Academy of Medicine, etc.

Until there is some generally, perhaps it were better to say universally, accepted doctrine of fever to serve as a basis, it does not seem to me that any particular type of fever can be very profitably studied by itself. That such a doctrine does not exist is not due to a lack of consideration of the subject in the past by at least some of the very best cultivated minds in the profession during many centuries; for the existing literature in the English language alone on fever and fevers would absorb in its bare reading the bulk of an effective life, even if protracted beyond the average of duration. They have, in all their various phases, been studied patiently, diligently, and, as I believe, exhaustively from an objective point of view. No investigator, as an observer simply, can hope to become the discoverer of new facts from this point. The subject, as presented by the literature of the profession, is excessively complicated with specificities, classes, genera, species, and varieties of type and form of a process which, in the nature of things, is in itself a unity.

Future study will certainly present novelties in simplifying its existing complexities, for it seems to me that these complexities are all of human invention, and have no existence in nature or fact. Much of the current views of fever in the professional and popular mind are the products of men's imaginations in the theological era of human history. With none of the facts of physical science in our day to guide investigation into the essential nature of the fever process in living bodies, it came to be regarded as essentially the work of the devil and in the interest of death. Fever or fevers have, therefore, all along through the past, and up to the present moment, been regarded as enemies, and the whole array of "drugs and medicines" leveled at them with a view of arresting them, or "stamping them out." With the facts brought to light in our day by physical science, this doctrine can not be maintained—will not bear investigation. All remedial measures aimed at annihilating them have failed, and will continue to fail on indefinitely forever. Nature's work is not convulsive, but by the slower processes of evolution. I say, therefore, that these convulsive efforts at stamping out fever have failed, with the apparent fact before me of the arrest of certain types of fever by bark or its alkaloids. The arrest of any given case of periodical fever is by no means a certainty, before hand, by bark or its alkaloids. The failures of bark to do this are quite as conspicuous as its successes or apparent successes; for it seems to me that in the bulk of cases, even where the fever is apparently arrested, that it is so, in fact, only so far as the work of a fever process has been finished at the time of its interruption; for relapses and return are the rule, and complete restoration to health the exception, until after the purposes of fever have been accomplished. I have, as all of us probably have, had repeated failures to arrest fever by bark or its alkaloids, and patients refuse to take it longer because of its failure to cure them.

Our own great Doctor Rush declared nearly a century ago that there was but one fever; and that the attempt of nosologists to map them into orders, genera, species, and varieties was no more successful than an attempt to map and describe the ever-changing forms and types of clouds in the firmament on a windy day. And he lived in the day when the methodical division of fevers of the Edinburgh school, exemplified in "Good's Study of Medicine," held complete control of the professional mind of the world, or, at least, the English-speaking world. But nosology is now no longer cultivated in the medical world. On the contrary, the very latest authorities, conspicuous among them Stokes, of Dublin, in his just published "Lectures on Fever," tells us to study the resemblances of different types of fevers to each other, and not the differences between them; that they are correlative, that is, naturally convertible into each other's types, and instances the interchangeability of typhus and typhoid, etc.; but, above all, study their "periodicity," by which, it seems to me, he means their course and duration.

The problem of fevers now is, "What is their essential nature?" Are the phenomena presented by living beings, known as fever, in the interest of life, or are they in the interest of death? For whoever solves this problem for himself masters the subject for the purposes of the actual working practitioner at the bed-side If these phenomena are in the interest of death, the war on them, using the whole available materia medica as ammunition, should go on, despite the failure of the enterprise during so many centuries in the past. But, from sheer exhaustion in our day, the war on typhoid fever has ceased, or mainly ceased, and the best and most successful remedial management is that known as "expectant"—to do nothing where there is nothing to be done.

What, then, is the essential nature of a fever, regarding all the types of fever, for the moment, as a unity? For if the purely imaginary factors of specific differences, as regards causation, variations of phenomena, and terminations, be admitted in the equation, no result which will include all the factors concerned is ever likely to be reached. In approaching the study of this problem every assumption must be dropped out of consideration.

There are, in fact, so far as observation and experimentation have been able to identify, only two modes by which the occasion or necessity for a fever process in a living body may be brought about, viz., from material introduced from without, "storing up force" capable of modifying the processes of repair and waste of tissue, and, as a result, modifying the dynamic capacities of the tissues, presenting, when these modifications of structure seriously impair function, the alternative of their removal by a fever process, and reconstruction from new material, or the death of the individual; the other, by material produced within the living body, partly by modifications of external conditions of force (meteorological changes), which, failing to be eliminated or rendered harmless by chemical decomposition, modifies the processes of repair and disintegration of tissues, resulting in modifications of their dynamic capacities or normal functional capacities, with the alternative of their gradual removal by a fever process and reconstruction from new material, or death of the individual.

The evidence I have been able to obtain by observation bearing on the causation of typhoid fever, places it, in the bulk of cases, in the latter category, viz., the causation being generated in the body of the sufferer, though not universally. While the whole catalogue of so-called specific or eruptive fevers, including typhus, syphilis, whooping-cough, gonorrhœa, etc., are as clearly in the first class in the great bulk of instances, though, it seems to me, that what are called "epidemics" do not receive satisfactory explanations from this cause alone. All these special types, as they are called, had a beginning, not from contagion, which might, with similar conditions, be repeated, and hence arise *de novo*, but in the main thing are brought about by external causes, viz., material storing up force, which, introduced into a living body, modifies the processes of repair and waste of tissue, resulting in like loss of dynamic capacities, necessitating a fever process for removal and reconstruction from new material, or death of the individual. Instances of death at the beginning, or prior to the beginning, of a fever process are seen in the so-called cold plague, pernicious remittents or sinking chills.

The whole train of phenomena of a fever, its causation, progress, and results, brought about by circumstances altogether within the control of the observer, and at almost any time can happily be studied in the expedient of vaccination. It seems a very simple thing, and so it is, but its very simplicity conceals its importance, and effectually prevents recognition of its lessons in the study of the essential nature of fever. Were it an exceptional phenomena of rare occurrence, it would receive more attention.

The train of phenomena brought about by the act of vaccinating an unprotected person embraces in itself everything connected with a fever process, no matter what its cause, type, symptoms, or duration; for, in the progress of the *vaccine disease*, so called, in different individuals, and under different circumstances—external conditions, and conditions of bodies at the time the virus, so to speak, is introduced—there is no want of resemblances to all other types and forms of fever recognized in the literature of the profession, including various sequesla and occasional death.

In vaccination there are—

1st. The introduction of a so-called "virus," composed of materials natural to living bodies, but differing from any natural compound in its peculiar chemical structure, which stores up, in virtue of this peculiar chemical structure, a mode of force which, though wholly inoperative elsewhere in nature, in a living body modifies the natural processes of repair and waste, or construction and disintegration of tissue, and of the molecular arrangement of the materials of structure of living human bodies, in such a manner that a repetition of the phenomena is in many cases impossible through life, though not all.

2d. The stage of incubation, as it is called, the time required to modify tissue, and the materials of which future tissue, in part, must be formed, existing in, or introduced into, the body, after the introduction of the virus, so that function is impaired, and the fever process set up for its removal and reconstruction in the modified manner, that a repetition of the same process can not be repeated through life.

3d. The decisive failure of function announced by chilliness, cessation of appetite, which is the demand for new material, succeeded by elevation of temperature, the fever process varying somewhat in different individuals in intensity, course, and duration.

4th. Stage of convalescence: a removal of a demand for new material, announced by return of appetite, gradual resumption of function, as the reconstructive processes are completed, and, with many exceptions, as occasional permanent damages to structure, or even death itself, a return to apparent or real condition of health. The result—immunity from the effects of the virus which produced the fever, as well as from the effects of a still more active virus, small-pox, sometimes for life; in other instances for longer or shorter intervals; in others, again, to be susceptible to their effects, but in a mode greatly modified in intensity and duration at all times.

A careful study of these consecutive phenomena really uncovers whatever secrets there are to any of us in the fever process, and supplies the matter for a more or less truthful and trustworthy answer to the question, What is the essential nature of the fever process in human bodies? Is it, in its purposes, conservative, and in the interest of life? or is it in the interest of death? In other words, is it the work of the devil?

It must be noticed that in vaccination the mischief to structure takes place before the algide shock—chill—which is the unmistakable announcement that a more or less serious disturbance to structure has already taken place, here as well as in other forms of fever, often with an apparently local point suffering more seriously than the remainder of the body. This local point is where the changes of structure have progressed to the extent of bringing it within the scope of human observation, sometimes with the naked eye, at others to the assisted eye. In vaccination the local point is very plainly visible to the unassisted eye of the observer. If there is no fever process set up for the removal of tissue, modified so as to seriously impair function, then there is speedy death, as with so-called pernicious fever; or apparent recovery takes place, with some permanent alterations of structure, to be known henceforth during the life of the individual as some incurable chronic disease. But the fever process being set up, a more or less rapid or gradual combination or removal of the modified structure goes on, and a full recovery may take place if the capacity to reproduce natural structure from new materials has survived in the midst of the molecular changes of structure. This capacity resides in the structures themselves, for it is one of the harmonies of organic nature that the main purpose of all life, animal or vegetable, is to provide its own preservation, reproduction, and multiplication from new material, as seen in its simplest form in a vegetable seed. We say wheat is ripe when the grain is perfect; that is, when the plant has provided the means for its reproduction and multiplication in a seed the parent plant is dead. Wheat ripe, wheat dead; its mission in organic life finished.

So, in the act of functional decay of the various organic structures composing an individual living body, each special kind stores up the force, in the necessary material, for its own reproduction from new material. For the separation of this peculiar material, this seed of the structures, so to speak, from the general débris of the tissues, and its restoration at a proper time and place to the circulation, with new material, to enter upon its work, there exists in all complex animal existences a complicated and widely distributed apparatus called the lymphatic system. The lymph, as it enters the blood current near the right auricle, is the seed of the structures, from whence it has been derived.

Now, if the capacity to store up the force for their own reproduction from new material has been lost by any of the structures, or the lymphatic system has shared the same fate, so as to incapacitate it for the performance of its function by any means, be it virus, malarial, chemical, or mechanical, the inevitable result is death.

And so, if the damage to any given structure be so great, previous or subsequent to the lighting up of the fever process, that it can not provide or store up force for its own reproduction from new material during a fever process, if death occurs it is said to be due to some lesions of this particular structure, be it enteric glands, as in typhoid fever, or stomach, or brain, or nerve masses, or wherever there is a failure of structure, as definitely announced by loss or important modification of function, be it called inflammatory, softening, or any other of the fanciful names given to appearances by pathologists.

It seems to me the conclusion can not be resisted that the essential nature of fever is conservative, intended to remove structure, tissue which has lost its physiological or natural dynamic or force-producing capacities; for in its decay by the fever process the principal dynamic result is heat, to which may be added, as an occasional result, an exaggerated or distorted imitation of natural function, as delirium, spasms, pain, etc., and by these means save the life of the individual. In most cases called severe, a large part of the tissues existing at the commencement of the fever process disappear before convalescence is complete.

With this understanding of the essential nature of fever, the pathology becomes transparent enough for any of us to understand; for if there were no spoiled tissue, so to speak, to be consumed, burnt up by the "burning disease," the fever process, there would be no necessity for a fever process, and none would occur or take place. And the bulk of the mischief to structure has already occurred prior to the commencement of all fevers, just as it was seen to be after vaccination and before the fever process was set up. The modifications or changes of structure are antecedent, the fever process the succeedent, and in its purpose and nature is essentially conservative in the interest of life, and not the work of the Evil one. If there were no failure of function on the part of any of the structures of a living body, there could be no antecedent alterations of structure, and none of us could ever know we were sick, in fact never could have a fever.

Whoever would manage fever, clinically, must study and comprehend its nature, course, and possible and probable results, if he desires to be useful to the sufferer. The actual working practitioner must bear in mind constantly that the fever process is not the work of an enemy, but that of a friend to the life of the individual; that its end is salutary, though death may take place, apparently, as a result. But death would occur without the fever process in such cases, and it would then figure in mortuary statistics as some form of "heart disease," or "brain disease," or "hæmorrhage," or "blood poisoning," or "bowel complaint," etc.

In the remedial management of fever cases, it is well to keep constantly in mind that it is not necessary to be pouring "drugs and medicines" into bodies of patients all the time; that the main duty of the physician is to watch and wait, and do nothing until there is something to do. It may be that the fever process is taking place too rapidly, as evidenced by high temperature and accompanying rapidity of blood circulation, adding no little to the danger in which the suffer is already involved. There are ample means for slowing speed. Never forget that effete matter, matter unfit for the further purposes of life, is accumulating in the body exactly in proportion to the rapidity of the process of combustion, and as measured by the heat evolved, which, if retained, will certainly add no little to the trouble already in existence, that is, give rise to additional pathological changes of structure. I think it may be stated as a rule from which there are no exceptions whatever, that the human body has no enemy in nature so formidable as the results of its own decay, not only in health, but in sickness, where the danger is multiplied many times. It is, therefore, of the first importance to ascertain, at short intervals, that it is actually evacuated as rapidly as it is forming. This evacuation will occur in the gaseous forms principally at the lungs, though some vapors will escape there; the liquid at the skin and kidneys, the latter the urine, holding in solution by far the most noxious material escaping from the body, because in the laboratory of the body this material, excessively complex, is not, and probably can not be, reduced to simpler chemical conditions, or gaseous states, safely; and something scarcely less noxious will escape from the rectum and bowels. If nature, however, is doing this work well in any case whatever, we, as physicians, should withhold our hands of interference. If she fails, study attentively in what, and the mode of failure, and by our art and the "stored up force" at our command in medicines, imitate, as far as may be, her natural processes. Do not go beyond, or thwart nature, if her motives are not clearly malevolent, as they would be in blood escaping from a severed vessel.

I read many reports of cases in journals, and hear them reported in societies, in which, it appears to me, the cases are made as they progress, by unwise or needless interference, or total neglect of interference on the part of medical men. I think natural evacuations should be interfered with with great caution. Modern pathologists speak of the caseous or tubercular deposits, so called, almost always found in post mortems after fatal cases. These are doubtless effete materials which crystallize for want of water to hold them in solution. The water supply is, therefore, of the very first importance, far more so, in the bulk of cases, than "stored up force" in "drugs and medicines."

Watching, waiting, regulating of necessary speed; getting rid of the débris of the wasting structures, imitating nature as near as can be, observing the utmost promptness in clearing away from the person, and out of the room, material escaping from the body; in a word, enforcing the utmost cleanliness, are the prime duties of the medical attendant.

If the patient is to recover, the tissues have to be reconstructed from new material, to a greater or less extent. This material must be supplied; therefore food, in such states as to be used by the body with the least expenditure of force in its reconstruction, is one of the most important features of professional management of fever cases. In small quantities, and frequently repeated, best suits the diminished powers of assimilation always existing in every fever patient; and milk, because it supplies every article needed by a body in health, stands first on the list, but not to the exclusion of other things.

With such knowledge of the beginnings, aims, progress, purposes, and ends of the fever process, it seems to me none of us can fail to be less bewildered during the progress of any given case, and every case, than I was when I regarded the fever process as the work of an enemy—the Devil—which I certainly did in the commencement of my career, thirty years ago. This is the popular conception now; and judging from the literature of the profession, it still lingers in the minds of those who occupy positions to lead the professional mind of the world.

The conclusions to which my clinical studies of fever have led me may be stated somewhat as follows:

1st. That before a fever process of any type or form can occur in a human body, there must be some antecedent modification of the dynamic capacities of structure.

2d. That these alterations may occur from internal causes, that is, from material acting as a virus, formed in the body, as in many cases of so-called typhoid fever, but not all.

3d. That these alterations may, and in fact, in the bulk of fever cases, do occur from material—gaseous, fluid, or solid—introduced from without, which acts by modifying the processes of repair and decay of tissue, resulting in modification of force-producing properties; as well as by external conditions, as meteorological changes, etc., acting in a somewhat similar manner, and with like results.

4th. That the fever process in a human body, irrespective of type or cause, is a conservative process, in the interest of life, removing, by the slow process of combustion or chemical decomposition, structure which has either wholly or partially lost its physiological functional capacities; and its reproduction from new material, with physiological functional capacities, sometimes, and in the bulk of cases of so-called eruptive fevers, so modified as to be incapable of being disarranged to the same extent by a like cause through life, *i. e.*, self-protective against second or repeated attacks, so called.

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Art. III.—*A Report of three Cases of Exophthalmic Goitre, with Remarks upon its History, Ætiology, and Treatment.* By W. R. Thompson, M.D., of Vandalia, Ohio. Read before the Montgomery County Medical Society.

It will not be my purpose in this paper to enter into a close examination as to whom may be due the credit of first directing the medical profession to this remarkable disease. Prominent among those whose names are associated with the early study of exophthalmic goitre are Graves, Basedow, Stokes, and Bigbie.

Prior to 1835, Graves recognized the leading symptoms in three cases, describing them under the title of functional diseases of the heart. He subsequently recognized and taught the disease as a distinct morbid entity; however, not until some three years after Basedow had published his concise tablet of symptoms. To this was soon added the clinical testimony of Stokes and Bigbie, who more accurately described and recognized the exophthalmos and goitre as making up the morbid trio of symptoms characteristic of this disease. Exophthalmic goitre is known and described under various titles. Trousseau prefers to characterize it as Graves's disease. Virchow objects to this nomenclature, inasmuch as Graves looked upon the palpitation of the heart and goitre as essential symptoms of hysteria, while the exophthalmos is scarcely mentioned; while to Basedow he attributes the credit of first describing it as a distinct and separate disease. Virchow has adopted the name of struma exophthalmica as more clearly expressive of the ætiology of disease.

The essential symptoms of exophthalmic goitre are functional derangements of the heart, enlarged thyroid gland, and prominence of the eye-ball; to which may be added a peculiar and characteristic vibratory thrill throughout the whole arterial system. Of this "tetrad" of symptoms the first and fourth are always present; without the cardiac and vascular derangement the disease would have no existence. The exophthalmos and goitrous enlargement may be absent and still the disease exist as a morbid entity; but to exist in its typical and characteristic form presumes an association of all the features above named. It is not unusual for there to be found *pari passu* with the disease a second order of symptoms, namely, anæmia, chlorosis, diseased liver and organic heart disease, hypertrophy, dilatation, and passive aneurisms.

The cardiac trouble in exophthalmic groitre consists in the increased number of its beats; the action of the heart is constant and unintermittent. In an ordinary case the heart presents no appreciable lesion, perhaps a slight enlargement, the enlargement being a true physiological hypertrophy, occasioned by the exaggerated action.

Should anæmia be present the result would be dilatation and passive aneurisms, from a weakness of tissue structure. Dr. Aran has stated that there were always enlargement of the heart in exophthalmic goitre, but this is not substantiated by the observation of other authors. There may be simply dilatation of the chambers of the heart, without hypertrophy of tissue. This disease, primarily, does not depend upon a diseased heart; it does not have the same history or ætiology which characterizes organic heart disease. It may attack individuals having endemic goitre, and others with organic disease of the heart; in those cases the diagnosis would be very much obscured. It will be readily seen how, in time, the turbulent action of the heart, beating from one hundred and twenty to one hundred and fifty to the minute, will result in vascular and structural lesions in a patient whose heart is already in the stage of incipient change, or be auxiliary in the morbid process already set up in a hypertrophied gland. Should there not be a tendency to organic disease of the heart in a patient with a well-marked case of exophthalmic goitre, the heart will, in time, invariably suffer. At first the disturbance, which is merely functional and dependent upon the disease in the nervous system, will, from the accelerated action of the organ, result in dilatation and hypertrophy. The dilatation may be general or simply confined to the left chamber.

The most remarkable feature in exophthalmic goitre is the prominence of the eye-balls. They have the appearance of being enlarged, but are not. Perhaps there is a slight increase of the vertical diameter, and a corresponding decrease of the antero-posterior diameter, caused by the hypertrophied cellulo fatty tissue of the orbit. The vision in most cases is very little impaired; in other cases, however, there exists anomalies of accommodation and refraction.

The exophthalmos is primarily caused by congestion of the blood vessels of the orbital tissue. The fatty tissue, receiving the superabundant arterial flow, will increase to such an extent, in some cases, as to force the balls of the eye forward upon the verge of the orbit, and will require compresses to retain them. This prominence of the eye-balls in this disease usually will cause, in the patient, the gravest apprehensions. The exaggerated action of the heart can be concealed, but the exophthalmos is a standing advertisement of their afflictions; they are certainly entitled to the commiseration of the true physician, inasmuch as they at once become the mark of quacks and charlatans. Hyper-medication is almost unavoidable. Of the three prominent symptoms in exophthalmic goitre, the enlargement of the thyroid glands will receive the least consideration in making up the diagnosis, on the account of the frequency of endemic goitre in women.

The usual phenomena presenting in this locality will consist, first, in a vascular congestion, which will in a short time be replaced by a permanent hypertrophy. The thyroid arteries will enlarge, and, with the carotids, will pulsate violently under any nervous disturbance, giving to the neck a peculiar and characteristic appearance. Exophthalmic goitre is not essentially a chronic disease. Two forms have been described by authors, the acute and chronic. The acute may come on suddenly, and, from the exaggerated action of the heart, endanger life. Among the secondary order of symptoms observed in this disease are anæmia, chlorosis, hypertrophy of the cranial bones, cirrhosed liver, amylaceous degeneration of the kidneys, and valvular and structural disease of the heart. These symptoms are found generally in the advanced stages of the disease.

The ætiology of exophthalmic goitre, in the present state of our knowledge, is not well understood; however, the general disturbance of the nervous system would seem to point to some primary blood poison expended upon the great sympathetic system of nerves, that being the division which primarily suffers, giving rise to the phenomenon of local congestion. Graves and Stokes think a common cause is sudden fright. The most powerful predisposing cause, however, is sex. Out of fifty cases reported by one author forty-two were women and eight men. Among the females the time of attack was between the ages of eighteen and thirty years, a circumstance which points to disorders of menstruation as a prolific cause.

The pathological condition which presents itself in Graves's disease, as has been already pointed out, is essentially neuropathic, presenting the strange phases of local congestion. The proximate cause of this congestion is a modification of the vaso-motor apparatus.

Differential diagnosis: There is no disease which can possibly be mistaken for exophthalmic goitre when all the symptoms pointed out by Graves are present. Its sudden or insidious invasion; its distinct and frequently recurring paroxysms of variable duration, presenting the three characteristic symptoms of exaggerated action of the heart, prominence of eye-balls, and enlarged thyroid, together with the vibratory action of the vessels, will all point, if carefully considered, to a correct diagnosis.

Although the prognosis is serious in a large proportion of cases, a patient will occasionally, after a lingering illness, suddenly change for the better and make a speedy recovery.

Treatment.—The treatment is very unsatisfactory in the great majority of cases. However, the indications for treatment would be first to regulate the turbulent action of the heart, build up the disordered condition of the nervous system, and subdue the tendency to local congestion. The so-called nervines have little or no effect. The preparations of iodine, which were very much in vogue, are of no value, and may do harm if given in the active stage. Iron has also been prescribed, with a view to modify the diseased action in the nervous system, but with little or no good, unless where there exists an anæmic condition. The primary neurosis, according to the best observers, is best treated with belladonna and bromide of potassa, the palpitations of the heart with veratrum viridi and digitalis, together with a general invigorating course, with correct hygiene. As there are no specifics, each case will suggest its own course of treatment. Ergot has been suggested, from its known effect upon the capillary circulation.

CASE NO. 1.—Miss B., æt. 25, consulted me in the spring of 1868 for a severe cough; complained of pain in throat and lungs. She coughed almost incessantly, expectorating very little. Physical exploration revealed no lung difficulty of any magnitude; pain in the chest perhaps the result of coughing. The pulse ranged from 100 to 140 to the minute; was extremely nervous. Otherwise she presented the appearance of perfect health. After quite an extended treatment no amelioration of the symptoms was manifest. The exaggerated cardiac action and cough were constant. The patient now passed into the hands of other physicians. In about eight months she again presented herself, having found no one who could tell her what the matter was to her satisfaction. It was during this period that the three symptoms of Graves's disease became manifest. The following appearance presented itself: The physiognomy had a savage and strange look; the eye-balls were very prominent, and appeared to be on the verge of escaping from the orbits; the thyroid gland was enlarged; the veins of the neck were very prominent, and pulsated with each pulsation of the carotids beneath them, giving to the neck a peculiar appearance; the cardiac action was excessive, ranging from 150 to 175 per minute; the pulse at the wrist was almost imperceptible; she was extremely nervous, and troubled with paroxysms of dyspnœa and painful palpitation. The heart gave no evidence of organic disease, although there was a marked difference between the carotids and the radial arteries, the former being full and vibrating, the latter weak and compressible. Vision perfect; complained of unsteadiness in walking, more especially when she ascended and descended to and from her chamber. At this last examination of the patient, Drs. J. D. Kemp and H. B. Nunemacher were present, both coinciding in the diagnosis of exophthalmic goitre. The patient was treated by us for that disease for a period, perhaps, of two years, during which the symptoms would partially subside, and convalescence seemed to be assured. The patient would share with her physicians in the hope of a speedy recovery, but was doomed to be as often disappointed by an aggravation of all the symptoms. The patient again passed from our observation, the family having removed to a distant part of the State; have since learned, however, that she still retains the prominent eye-balls and exaggerated heart action, but not nearly so bad as during the second year of the trouble. The heart never appeared to suffer in its organic structure from the excessive action.

Case No. 2.—Was called to see Mrs. S., æt. about 50 years; found her suffering with paroxysms of dyspnœa, and painful throbbing of the arteries and palpitation of the heart. The patient's physical appearance was that of one distressed in mind and emaciated in body. Pulse ranged from 100 to 140 per minute. My attention was directed to a violent pulsation and throbbing in the region of the abdominal aorta, confined to a space of about three inches, immediately above the iliac bifurcation. My first impulse was that I had a case of aneurism, but failing to find any well-defined tumor, was at a loss to determine the cause. The patient grew worse as each paroxysm succeeded the other. A consultation was had with Dr. J. C. Reeve, of Dayton, who was inclined to the belief that there was an aneurism, though unable to detect the tumor. A few days later, we again saw the patient—Dr. J. C. Conkling present. After a fruitless search for an imaginary tumor by us all, it was suggested by Dr. Conkling that perhaps it was due to nervous influence, to which opinion we were inclined to agree—the subsequent history of the case proved the entire correctness of the opinion. The disease still progressed, all the early symptoms being more or less intensified. About the middle of her illness, which lasted for about three months, the exophthalmus, made its appearance in its characteristic form. I was no more in doubt as to the diagnosis. The thyroid gland was very little affected. This patient made a good recovery, except she still retains the prominent eye-balls. The throbbing was so violent at times that the bed-clothing would be raised with each stroke of the heart. This patient imagined she had two hearts. Judging from external appearances, her opinion was not to be wondered at, so nearly did it resemble the heart action.

CASE No. 3.—Miss S., æt. 25 years, daughter of patient number two, was taken sick, soon after her mother's recovery, with intermittent fever, which returned at intervals. This trouble was soon superseded by a general disturbance of the nervous system, with dyspnœa and palpitation of the heart. The carotid arteries beat violently, giving to the neck and thyroid gland, which was enlarged, a pulsatory appearance. The exaggerated heart action was soon joined by the other prominent symptoms of exophthalmic goitre. The eye-balls became very prominent, so much so as to occasion in her the gravest alarm lest they should escape from the orbits. The thyroid glands enlarged presented a beautiful case of this disease. It has been about four years since the first symptom appeared. She was treated by me for about one year, during which time she would rapidly convalesce under treatment. Again the attack would be renewed, dyspnœa and palpitation would appear, after which a tedious recovery would supervene, but never so as to be free from the symptoms of her old complaint. She subsequently became the patient of as many different physicians as there were points of difference in the symptoms of her disease. She took up her abode in doctor's offices and drug shops, but all to no purpose; she regularly has the paroxysms of palpitation and dyspnœa. Her stomach, no longer able to digest the nostrums which had been showered into it, gave way, and would neither retain nourishment nor medicine. Her heart beats from 120 to 150, full and strong, without any irregularity, but with a marked bellows murmur over the apex. She would fall away in flesh at times to a mere skeleton, then again bloat up as in general dropsy. The patient has all the secondary order of symptoms, and is perhaps incurable.

JUNE 23, 1876.

ART. IV.—*A New Device for securing Union in Staphyloraphy, Vesico-vaginal Fistula, etc.* BY A. SCHEIBENZUBER, M.D., Dayton, Ohio.

As we all know, the practitioner often fears to attempt an operation in cases of fissured palate, from the fact that, even with the greatest skill and care, such operations frequently fail of success. Those who have read the text-books on the subject are already aware of the multitude of instruments, and the various modes of operation which have been devised for the cure of cleft palate—almost as many methods as cures. It is not the object of this paper to multiply, but on the contrary to endeavor to diminish the number of these appliances. I shall not occupy any time with the anatomy of the parts, the symptoms of the disease, or the rationale of the various operations that have been practiced, all of which may be found in the ordinary text-books, but proceed at once to the object I have in view.

The principal cause of failure in the operation is that the retraction of the parts to be united is so strong that the wires or threads used for sutures cut their way out before the desired union has taken place. We are unable to keep the palate perfectly at rest for a sufficient length of time to secure primary union. First, there is the natural contractility of the two halves of the fissured palate to be overcome; second, the contraction of the muscles, the tensor palati, levator palati, and the azygos uvulæ, which upon every motion of breathing or swallowing tend to re-open the united fissure; third, independent of this action the food taken is pressed against the palate, and I have seen even a case of recent union re-opened by the attempt to swallow a piece of meat. By dividing the above named muscles, by separating the soft palate from the bone, we are able to reduce the contraction of the muscles about one-third, the remaining two-thirds we are, up to date, unable to remove. I have endeavored to overcome this by the following method:

I asked myself, "Why can not the surgeon do what the shoemaker does with the holes for lacing shoes, and the tailor with his button holes—line the holes so as to enable them to resist?" The application of this principle constitutes the little device which I wish to bring to the notice of the profession.

In every case, demanding the use of sutures, where the surgeon has reason to fear that the thread or wire used would cut through before the edges of the wound are united, I recommend that sutures be passed opposite one another, through each edge, in sufficient number, loosely tied, and left in situ until the edges of the holes thus made are cicatrized, in just the same manner as permanent holes are made for ear-rings. Such cicatrized holes are applicable to the operaation of cleft palate, vesico-vaginal fistula, etc., etc.

The thread or wire will not so easily cut through a cicatrix, which will resist a considerable and protracted pressure, and thus we gain time for a perfect and firm union.

A. B., aged twenty-four years, came under my treatment for cleft palate. An operation for hare lip had been performed in childhood. The defect begins just behind the teeth. I performed the operation according to Dieffenbach. The entire soft palate was united, but on the third day I found the threads already cutting through the edges, only one part uniting, and even this did not seem firm enough to be trusted. I cauterized according to Dupuytren; the retraction again caused a failure. I then consulted Dr. Dudley, of New York; he recommended the division of the tendons of the levator and tensor palati muscles, but nevertheless the thread and one silver wire cut through before union was perfect. Mr. B. being an excellent subject and having immense patience, permitted a fourth trial according to the new method described above. I made on each side of the soft palate four stitches with silk, knotted the threads and left them until the wounds were thoroughly cicatrized. On the twelfth day I pared the edges, passed my sutures through the prepared holes and united as usual. this time with success.

ORIGINAL LECTURES.

ART. V.—*On the Legal Responsibilities of Medical Men.* Lectures Delivered in the University Medical College, New York. By STEPHEN SMITH, M.D., Surgeon to Bellevue Hospital, New York.

[Continued from page 46.]

3. You engage to treat every case which you undertake with reasonable care and diligence. It matters nothing how much learning and experience you bring to the discharge of your duties, if you fail to give it the necessary attention you are liable to the charge of *negligence.* And "negligence is as much a fraud upon an employer as want of skill," and has

always been regarded and treated as a crime. The term "negligence" has a wide signification. You may neglect to visit your patient as frequently as you ought, and he may receive harm from the too long continuance of a particular treatment. Dressings may not be changed sufficiently frequently to meet the varying condition of injured parts. You may fail to recognize important changes in the cause of the disease, and thus lose opportunities to benefit the patient by new remedies. You may not give proper directions in prescribing powerful remedies, and the patient is injured by taking them improperly. You may operate too early or too late. In these, and in many other instances, you may be charged with culpable negligence. It is noticeable that negligence in many cases is scarcely separable from "want of skill." The truth is that they are so related that they may and will generally be included in the same charge. Hence we have the legal statement, "skill and diligence may be considered, therefore, as indissolubly associated, since skill judges of the measure of diligence required and also furnishes the latter with the eyes of observation and the hands of execution; while diligence on her part gives cumulative power to skill, and leaves no link wanting in the continuous chain of treatment." The punishment of negligence on the part of a physician has in all ages been of the severest character. In the early periods of history the death of a patient was prima facie evidence of negligence, and punishable with banishment or death.

4. You engage to practice according to the tenets of the particular school to which you belong, or, in a legal phrase, "a physician is expected to practice according to his professed and avowed system." This is an important legal discrimination which should receive more attention in our time, when so many practitioners are endeavoring to secure success by professing to treat diseases according to certain theories, and yet who change their methods of treatment to

meet the peculiarities of practice. A change of the system of treatment in any given disease is regarded by courts as an admission of want of ordinary skill, and is construed as a fraud upon the public. The principle embodied in this decision of the courts comes down to us from the ancient Egyptians. Diodorus Siculus states that the physicians of Egypt made use of receipts prescribed by law, which were originally prepared by ancient physicians. If they could not cure their patients by these receipts they were not blamed, but if they used other remedies they were to suffer death. The justice of the rule is apparent. If a patient employs a homœopathist he is entitled to homœopathic treatment, and to nothing else, at the hands of the employé who professes to be skillful in that branch. An apothecary has as much right to give a man strychnine who applies for quinine as a homœopathic practitioner to prescribe medicine according to any other dogma than *similia similibus*, and to the theory that potency increases with dilution. Nor is the practitioner relieved of the charge of fraud when he announces to his patient that he will change the method of treatment. The declaration of his intention is an admission of want of skill in the homœopathic art. Nor, finally, can he make the change with the consent of the patient, for by such an act he still acknowledges his want of skill. It is apparent, therefore, that if the common law rule was enforced rigidly every practitioner would be compelled to practice strictly according to the public professions which he makes.

Such are some of the features of the contract which your name, with the word "Doctor" prefixed, posted on your door, establishes between you and the community. But can there be no written contract between physician and patient? Yes, certainly, you can make a special contract in any case the same as the common artisan. And it is well for you to understand your obligations under such contract, for many are tempted to enter into such agreements in the belief that they gain special advantages. In the first place, you may contract to receive a certain sum "contingent upon the performance of a cure," but such contracts are and always have been regarded as dishonorable. The old Roman physician would not associate with a medical man who in any sense placed his profession on the level of a trade. The duties of practice were to him purely honorary. He would not even make a pecuniary charge for his attendance upon the sick. Whatever compensation he received was of the nature of a gift. This regard for the honor of the profession has continued to our time, though gradually the custom of making charges for professional attendance has extended over the civilized world. But as yet special contracts of "no cure, no pay," have not been approved. Whenever you make a special contract you must understand that you will be required to fulfill it to the letter, with a single exception, which I will presently mention. The amount of money agreed upon is not a matter of any importance. "The absolute promise to cure forms the gist of the contract." And the physician must be able to prove full compliance with the terms of the agreement. It may happen that in the course of the disease which you contract to cure some unexpected complication arises which thwarts your best efforts. Will you then be held to your contract? That will depend upon the nature of the complication. If it is accidental, and liable to occur in such a disease, you are responsible, because you should have foreseen its possibility and probability, and have made it a condition in your contract. If, however, there was in the case an element impossible to cure, in the very nature of things you would not be liable for not fulfilling your agreement. You are not bound by your contract to do acts in themselves absolutely impossible; and this forms the exception to the rule to which I just alluded. For example, if called to a case of dry gangrene commencing in the extremity of a toe, and you should agree to so treat the disease as to guarantee the preservation of the foot, you would be responsible, though the disease should extend to the knee in spite of the most judicious treatment; for you should have foreseen the liability of such extension of the gangrene. If, however, when called to the case the limb below the knee was entirely mortified, and you should engage to restore the foot to health, you would not be required to fulfill your contract, or rather your contract would be void *ab initio* "*Impossibilium nulla obligatio est.*"

[TO BE CONTINUED.]

CLINICAL RECORDS.

ART. VI.—*Intra-Pelvic Phlegmonous Tumor, involving Rectum, Uterus, and Sacral Plexus.* By EDWARD J. BERMINGHAM, M.D., New York, Physician to the "Chapin Home for the Aged and Infirm."

RECOVERY.

Catherine C , æt. 34, married, and the mother of two children, on September 28th, 1875, was delivered of a stillborn child between the fifth and sixth months of utero-gestation. Miscarriage induced by two days' fatigue in house-hunting and carrying about with her a child about three years old. The day following she had a chill, and some tenderness over the uterus; temperature rose to 103° F., and pulse to 130. Ordered liq. morph. U. S. P. ʒi. every two hours, which gave complete relief in less than twenty-four hours. The chill and fever returned a couple of days later, and a well-marked train of symptoms pointing to peri-uterine cellulitis lasted for a little over two weeks, during which she was treated by full doses of U. S. liq. morph., quinine, warm fomentations and vaginal injections, wine, and complete rest in the recumbent position. During this time the bowels moved occasionally by administering laxatives, such as ol. ricini or a couple of compound colocynth pills; but when the inflammatory symptoms had subsided, an evacuation of the bowel could not be produced, although gr. xx. of pulv. jalapæ comp. were given.

On October 23d, no evacuation whatever having taken place for five days, a digital examination of the rectum was made, and with the following result: An extensive and dense mass was felt completely surrounding the gut, and the same tumor could be distinctly detected by recto-abdominal and recto-vaginal manipulation. Uterus immovable. The mass was so situated that the tip of the index finger could barely be engaged in the constriction of the rectum that it had caused. It was larger than a good-sized orange, and almost immovably fixed to the pelvis, which could be rolled from side to side by grasping the tumor recto-abdominally. An enema administered did not pass beyond the stricture, but was immediately returned. I concluded that the mass was an extraordinary deposit of inflammatory material due to pelvic cellulitis. The patient suffered considerably from the accumulating feces, and on the following day the ordinary long enema tube was introduced through the constriction which hugged it, and the bowel was emptied by alternately injecting warm water to soften the feces and drawing off the watery mixture through the tube. This gave great relief for a few days.

On the morning of the 29th of October Dr. James L. Little saw the patient in consultation, and in the afternoon of the same day Dr. T. Gaillard Thomas. The result of the consultations was, that the mass was considered as a deposit of inflammatory material from pelvic cellulitis, but that there might have been some trouble of a malignant character about the rectum prior to the miscarriage, and that if such were the case, in all probability the whole mass would eventually assume a cancerous aspect. The patient was put upon tonics, and we determined to administer cream of tartar and surphur every evening as a laxative, and to await further developments in the case.

November 1. No evacuation for a week. Unbearable distress around the loins and down the left thigh. Operation of removing feces per long enema tube, as practiced on October 23d, repeated, which gave complete relief.

November 8. Since the emptying of the bowel a week since, a daily soft fecal evacuation has been maintained by means of the cream of tartar and sulphur, but for the last couple of days the patient has been suffering considerable pain, and this morning a slimy, bad-smelling material passed per rectum. She has been allowed occasional doses of morphia to relieve the pain, but lately this has not proved entirely effective.

November 15. A couple of days since the patient was seen in consultation by Drs. Willard Parker and D. M. Stimson, and the opinion of each of the gentlemen was in favor of the non-malignancy of the mass. It was decided to persist in the treatment for a few months, giving the iodides of iron and potassium besides.

January 1, 1876. Examination to-day revealed a decided diminution in the size of the tumor. The patient is generally free from suffering, but has occasional paroxysms of pain, which are sometimes very severe. These attacks seem to be of two kinds, first, colicky pains, which are relieved by the internal administration of turpentine; and, secondly, pain in the left hip and thigh, which is, undoubtedly, due to the involvement of the sacral plexus of nerves, and has to be relieved by morphia. The bowels move regularly by the aid of aperients, and the general condition of the patient is much improved.

February 1. Patient is still improving. The passages are more solid and are not broken into as many pieces as formerly, and there is very little distress when at stool. The pains spoken of above are considerably better also. An examination showed that the deposit was being rapidly absorbed. It has already diminished to about the size of a hen egg, and has left the uterus quite free.

A few days later Dr. Thomas again saw the case. The change in the patient's general condition as well as the marked diminution in the size of the tumor were very perceptible to him.

March 1. To-day Mrs. C. is very cheerful over the fact that she is again enabled to attend to her household duties, and also that she can now have a natural movement from the bowel every other day without the aid of medicine. I neglected to mention that sometime in the beginning of December menstruation began, but on the evening of the same day the patient became almost frantic from the intensity of the pain; and it was necessary to quiet her by a large hypodermic injection of morphia. This checked the menstrual flow, which did not again return until the middle of February, at which time it was perfectly normal. No examination made to-day.

June 30. The patient is entirely free from suffering or inconvenience of any kind. An examination showed the uterus to be perfectly free and movable; and the normal calibre of the rectum has been restored. There is still a small amount of the deposit remaining, which there is not the slightest doubt will be absorbed within a very short time.

The case is an interesting one; first, on account of the extent of the deposit. Although most gynecological authorities recognize and describe pelvic cellulitis, yet not one that I am aware of, calls attention to such an extensive deposit as occurred in this case. On this account the question as to the malignancy of the mass was thoroughly discussed at each consultation. The next point of interest is in regard to the treatment. What surgical measures would we be justified in adopting in a case of this kind? The patient suffered intensely at times from the accumulating feces, and the pain from pressure on the sacral nerves; and begged to have an operation of some kind performed to relieve her, as her condition was intolerable. She would take no nourishment, and at one time death from inanition seemed imminent. Lumbar colotomy was therefore discussed, as it would obviate one source of annoyance—the pressure of the fecal mass; and it would be especially indicated were the tumor at all malignant. We determined, however, upon a conservative course, and the feces, whenever accumulation in sufficient quantity to produce distress took place, were removed in the manner detailed under date of October 23.

The case, therefore, stands as a most able advocate of conservative surgery.

102 West 49th street, New York.

Art. VII.—*Cases from the service of* W. H. Van Wyck, M.D., Physician to Charity Hospital, New York.

Case 1. Alice Fay, æt. 24; single; domestic; born in the United States; admitted May 31, 1876. Family history unimportant. Patient denies drink and venereal disease. Declares that she was never sick until two months since, when she began to be troubled with dyspnœa, and swelling of the ankles. Has had no cough nor hæmoptysis. On admission patient was anæmic, had almost constant dyspnœa, no appetite, bowels irregular, no cough. On physical examination a few liquid rales heard over both lungs. Percussion over lungs negative. Area of cardiac dulness somewhat enlarged. A loud murmur was heard at apex, taking place of first sound, which was heard also at back. Murmur also heard at base, but very faintly. The second sound of heart could not be distinguished. Ankle sœdematous. Urine nonalbuminous.

Treatment.—℞. Pulv. jalap co. ʒss. Potass bitart. ʒij. ter in die. Tr. ferri chlor. gtts. ℥xx. ter in die. Extra diet, and whisky ℥iij. daily.

June 7. Patient continued in about the same condition as on admission until this morning, when she had a severe attack of dyspnœa. Extremities became cold, and no pulse could be detected either at wrist or ankle. Patient was slightly delirious, refusing medicine at times. Heart was beating rapidly and irregularly. Murmur was audible with stethoscope, but sounds could not be separated. Pulse in carotids feeble and irregular. 9 A.M. ordered whisky, ℥ss. every fifteen minutes. Hot bottles around extremities, and gave ether, ʒij, hypodermically, at 9:30 and 10:30 A.M. At noon there was no improvement in condition of patient. Whisky continued in as large doses as patient could be persuaded to swallow. At 3 P.M. pulse obtained at wrist. Feet and legs warm; hands cold; dyspnœa less. Fully conscious. Says she feels better. Gave ʒss. ether hypodermically. Whisky continued. At 4 P.M. temperature 98°.

June 8, A.M. Quite comfortable. Pulse obtainable at wrist. Feet warm, but hands still cold. Had ammon carb. grs. x. every half hour through the night. Vomited frequently, and is still vomiting this A.M. 10:00 A.M. whisky discontinued; had ether hypodermically. 12:90 M. ammon carb. continued, together with ether, hypodermically. At 3 P.M. pulse could not be obtained at wrists. The dyspnœa increased, and at 6:00 P.M. the patient died.

Autopsy.—Shows after death body medium size, well nourished; legs œdematous, commencing blood decomposition in superficial veins. Head: Brain normal; vessels normal. Thorax and Lungs: Pleuræ, both nearly filled with passive effusion. Bands of adhesion on right side posteriorly. Both lungs compressed, and are devoid of air except at apex and anterior margin. Heart: Pericardium distended with opaque, brownish fluid, containing a few flocculi. Visceral pericardium shows at base of heart some little sub-pericardial hemorrhage and roughened surface, and also along course of vessels some small shining bodies. Weight of heart fourteen ounces. Hypertrophy with predominant dilatation. Walls fawn color, flabby. Hypertrophy most marked on right side. Dilatation most marked on left side. By hydrostatic test, aortic and mitral vales normal, but there was regurgitation from left ventricle into auricle, by means of acardiac aneurism. This aneurism is situated in front of the right side of the anterior leaflet of the mitral valve. It presents an oval sacculated dilatation one inch by three eighths of an inch transversely, at bottom of which are two round openings about the size of a cherry. These communicate with a *sac* the size of an English walnut, situated above the right commissure of mitral valve. The opening from this into the auricle is by a round opening, smooth edges, half an inch in diameter. This opening is situated about one quarter of an inch from anterior walls of ventricle, and about two-thirds of an inch from the anterior leaflet of mitral valve. The walls of *sac* appear to be made of thickened endocardium of the left auricle. The cavity is empty. Abdomen: Liver cirrhotic, fatty, congested, (portal). Spleen firm, normal size. Kidneys chronic interstitial nephritis, active congestion. Stomach normal. Intestines: Peyers patches very prominent, and in lower portion of small intestines some of the individual follicles are congested and undergoing ulcerative processes.

Case 2.—Bridget Shackelton, æt. 47; widow; domestic; born in Ireland; admitted May 15, 1876. Patient, when admitted, was in a semi-conscious condition, and no reliable history could be obtained. She stated that she had been drinking heavily for some days, and had slept out of doors one night previous to coming to hospital. When brought into the ward her breathing was at times stertorous and irregular. She made constant efforts to drive away imaginary objects. Her eyes were blood-shot, and alcoholic fumes from the patient were perceptible over the whole ward. Two hours after admission pulse was feeble, irregular, and beating 130 per minute; temperature 104, and respirations 64. On day of admission had bromid. potass. gr. xl. three times, and quin. sulph. gr. x. twice.

May 16.—Pulse 130, temperature 103½, respiration 63. On physical examination dullness over lower lobe of right lung, with circumscribed spots of dullness over left lung. On auscultation a few crepitant rales were heard over lower lobe of left lung; bronchial breathing over circumscribed portions of both lungs. Owing to feebleness of patient bromide was discontinued to-day, and quin. sulph. gr. x. every four hours given, together with whisky ℥vi., and two hypodermic injections of ether of ʒi each.

May 19.—Condition of patient has changed very little during the past two days. Quinine has been continued, gr. x. t. i. d., whisky given freely, and hypodermics of ether occasionally. This morning patient appears a little stronger, and respirations are more regular. Pulse 136, temperature 101½, respirations 54. Patient made several attempts to speak to-day, but could not be understood; bowels moved to-day.

May 20.—Pulse 130—more regular than heretofore, temperature 102½. Ordered quin. sulph. gr. v. every three hours, and whisky ℥ss. every hour; also at 10 a. m. gave ʒi. of ether hypodermically. At noon respirations had risen to 70 per minute; pulse could scarcely be counted; temperature, 104. At 5 p. m. patient had become nearly unconscious, and could with difficulty swallow medicines. Had whisky ℥ss. every half hour. Hypodermic injections of ether were continued at intervals of two or three hours during the night, but the patient continued to grow weaker, became comatose at midnight, and died at 5 a. m. of the 21st.

Autopsy, 33½ hours after death: Head—brain: vessels of surface congested; ventricles slightly dilated, contained a small amount of fluid; brain substance œdematous. Lungs—lower lobe of left, seat of acute pneumonia in red stage; lower lobe of right markedly congested, with a number of lobular pneumonias, the largest the size of an English walnut, all passing from red stage to gray; remaining portions normal. Heart—flabby; cavities empty; normal. Liver—enlarged, pale red color; fatty. Spleen—firm; normal. Kidneys—chronic parenchymatous degeneration. Stomach and intestines—normal. Rigor mortis present. Body well nourished.

ART. VIII.—*Caries of the Head of the Humerus and Glenoid Cavity. Operation, recovery.* By F. S. GRANT, M.D., Surgeon to St. John's Riverside Hospital, Yonkers, New York.

Edward Doyle, æt. 25; single; native of Ireland; admitted to St. John's Riverside Hospital, Yonkers, N. Y., December 3, 1875.

Patient's History.—Says he has always enjoyed good health up to the time his left arm began giving him trouble, which was six months previous to his admission. He is not aware of any blow or violence inflicted upon the arm six months ago, but states he lifted very heavy timber at that time, and strained himself quite often. The trouble began with pain in the left arm at about the middle of the humerus, the pains being like cramps in character, and coming on at first in the morning, after a night's rest. By making free motion the pain, as he says, went away, and only returned after another night's rest, or a period of twenty-four hours. But this was only for a few days, then the cramps became more violent, and the pain in the arm continued through the day. He was now obliged to stop working, for the left arm was useless to him. Four months passed, the pains increasing in severity, being most severe at night, and preventing sleep. There now appeared on the inner aspect of the arm, and at its middle, a red and sensitive spot, which enlarged rapidly, broke, and discharged some healthy pus. The pain continued without a let up, and the discharge increased in quantity, so that nearly six or eight ounces of thin, semi-purulent fluid escaped per day from the sinus. This was five months and two weeks after the first symptoms of trouble. A second sinus formed just above the first, which discharged also. During the last two weeks pus has run from the sinuses in a continual flow, and the patient states that he feels he is failing every day.

Examination of Patient.—Emaciated, weak, and hectic looking; speaks as if it were an effort, stopping between his words to take breath. In examination of chest heart sounds normal, but rapid and feeble pulsations; right lung normal, with slightly increased vocal resonance; on the left side some depression above and below the clavicle; slight vocal fremitus; dullness appreciated at the infra-clavicular region on making percussion *from* the trachea; bronchial respiration, with mucus and sub-crepitant râles, on coughing; pulse 100, rapid, weak, and often catching; temperature 104 F. in axilla (this examination being made late in the afternoon); respiration 30; tongue moist and cherry-red. Patient has a nasty, hacking cough, with tenaceous mucous expectorations, sweats profusely at night, is dyspeptic, and has some diarrhœa.

Here, then, are presented the well-marked symptoms of that stage of pulmonary phthisis which Dr. A. L. Loomis, in his recent work, "Diseases of the Respiratory Organs, Heart, and Kidneys," has designated as the *catarrhal*, viz., *dyspnœa*, due in this case to the high febrile action; symptomatic *cough* and *expectoration*, *fever*, *accelerated pulse*, *emaciation*, *disturbance of digestion*, and *diarrhœa;* to which may be added the physical signs. I have been thus particular in mentioning these symptoms because it will subsequently be shown how far they were all either cured or modified under rational and surgical treatment.

The examination of the urine, which was dark-red in color, gave no evidence of renal disease.

Examination of Diseased Arm.—Muscles of left arm flabby, and in a condition of atony from disease, particularly the deltoid muscle; the entire shaft of the humerus larger than the right—nearly double the size between its head and the sinuses; acromian end of clavicle and acromian process sharply defined—not so on the right side; the two sinuses communicating with each other superficially, and situated along the inner border of the biceps muscle at the middle of the humerus; on probing them they are found leading *upwards* towards the *joint*, and do not lead any where directly downwards or outwards to the shaft; on removal of the probe, pus flowed *downwards* and out through the sinus. Patient can not move his arm at the shoulder-joint without causing excessive *pain;* motions of the fore-arm, while giving no pain, have to be assisted by patient's right hand; slight concussion made from below upwards, with elbow at right angles, produces sharp pain in the *shoulder-joint*, and manipulations externally about the joint give flinching and pain. The diagnosis I made at this examination, the day of patient's admission, was caries of the head of the humerus, with disorganization of ligamentous and cartilaginous structures about the point. The patient was too weak to think of any immediate operation, and was put upon the following line of treatment:

For the high fever and night sweats—

℞. Quiniæ sulph., ʒi.
Acid sulph. aromat., ʒij.
M. Aqua, ℥vj.

Sig: A tablespoonful every three hours.

For his sleeplessness and diarrhœa—

℞. Bismuth subnit., ʒi.
Morphiæ sulph., gr. j.

M. et div. in chart. No. xij. Sig: One powder every two hours.

For his nutrition and weak stomach, iced milk-punch, q. s., and no other food at present. The nurse was ordered to keep the arm and surroundings clean from discharges, and the ward well ventilated.

December 4. Very weak, but able to sit up in bed through the day. Temperature this morning 102½, pulse 100; at evening, temperature 98, pulse 100. According to the chart of temperature, etc., this was the lowest temperature assumed previous to the operation, and was an evidence, I believe, of the antipyretic action of the quinine, he having up to this time taken altogether 40 grains.

December 5. Passed a good night; diarrhœa ceased; sweating not so profuse; retains milk-punch on stomach very well. Temperature in morning 100, pulse 100; in evening 101½, pulse 104.

December 6. Gave patient ether this morning, and made a careful and extended examination of the diseased region. When patient was completely relaxed I found his arm could be freely moved in all directions. On placing the left hand firmly over the head of the humerus, with the thumb in the axilla, and making wide abduction and adduction of the limb with the right hand, I distinctly appreciated a soft, grating, or nibbing sound in the ball and socket joint. This sound could only be detected by the motions alluded to. The sound elicited seemed to originate from the lower and outer side of the caput humeri and glenoid cavity. A sinus was found leading directly upwards and inwards to the joint. The operation of excision at the shoulder-joint was decided upon, but deferred until the man was in a more favorable condition. Morning temperature 102, pulse 100; evening temperature 102½, pulse 120.

December 7. Shoulder feels very sore after yesterday's manipulations; sweated profusely last night, but had no chill or rigor; sinuses continued discharging freely. Same treatment continued. Morning temperature 102, pulse 120; evening temperature 101½, pulse 110.

December 11. Has been comfortable the past three days, temperature and pulse ranging about the same—102, 100; takes milk-punch and milk alone; sweats at night, but not excessively; allowed light food and beef tea. As he begins complaining of ringing in the ears, the quinine was decreased to three doses a day.

December 14. Pulse and temperature about steady at 100, 102; feeling better in every respect except the night sweats, which still continue; the arm being kept perfectly quiet by his side, there is very little of the former pain; operation fixed for 17th instant.

December 17. Patient has continued about the same, pulse and temperature remaining at 100, 102, with slight elevations at night. He was put on the operating table this afternoon, ether administered, and the operation of excision performed, in the presence of Drs. Jenkins, Reinfelder, and Swift, of the Medical Staff, and Dr. Swasey, to whom and Dr. Swift I would here express my thanks for valuable assistance. Esmarch's bandage was applied, and the two sinuses opened, the incision being carried down to the bone, but no disease of the bone at this point was here found. Larrey's incision for amputation at the shoulder-joint, as modified by Mr. Spence, of Edinburgh, was made over the shoulder articulation, by commencing at the coracoid process, to its outer side, and carrying the incision downwards and outwards five inches in extent, and cutting directly down upon the bone. The object of this incision is to avoid cutting the long tendon of the biceps, which is seen at the outer side of the cut and pushed aside. The anastomosing circumflex arteries were divided and spouted freely for a few moments, but soon ceased and were not ligated. The tissues were separated from the bone, the insertions of the several shoulder muscles were severed, and the joint fully exposed. On inserting the finger into the socket I could feel caries of the whole head, and of the upper and posterior edge of the glenoid cavity, to the extent of nearly one-quarter of its circumference. The head of the bone was now tilted outwards, the chain-saw applied, and the diseased portion sawed off at the surgical neck. There was considerable oozing of venous blood into the cavity, but it was quickly taken up by sponges. With bone forceps, and with the finger for a guide, I chipped off all caries of the glenoid edge I could feel, but am not positive if it was *all* removed, as much embarrassment attended the application of the forceps, because of the venous oozing and depth of the cavity.

Hemorrhage gradually ceased on exposure to air; the arm was placed at right angles by the side and kept there by a bandage and sling; patient placed comfortably in bed and cold applications of carbolic acid water made to the arm and shoulder. Given U. S. solution morphine, teaspoonfull every hour. Evening temperature 101; pulse 100.

December 18. Passed a good night; shoulder and arm very much swollen and inflamed; cold kept applied. Morning temperature 102½; pulse 120; evening temperature 103; pulse 120. Increased the quinine to four times a day.

December 19. Morning temperature 100½; pulse 100; evening temperature 102½; pulse 120; swelling beginning to subside; sweats again profusely.

December 20. Morning temperature 100; pulse, 96; evening temperature 101; pulse 100; swelling still less; discharge of a thin, sanious fluid; cold solutions carbolic acid continued; patient very comfortable.

December 21. Morning temperature 101; pulse 110; evening temperature 99; pulse 96. From this date the pulse and temperature wavered between 100 and 99 respectively, and at the present writing (January 4, 1876) stands in the same ratio—a fact which, it is noticeable, did not occur previous to the operation, for it will be remembered that under the use of quinine in the same doses the pulse and temperature had settled down to 100 and 102 respectively.

Therefore, it seems fair to infer that with the source of irritation removed, and by the continuance of quinine, the pulse and temperature have been brought down to nearly their normal standard.

December 25. The wound in the shoulder is discharging freely, the material discharged resembling catsup more than any thing else I can think of, and having very little offensive smell. The lower incision, which was plugged with lint, accumulated the same material, loosened the lint, which was removed to-day. Both wounds were carefully syringed out with carbolic water and dressed with lint soaked in a preparation composed of two drachms carbolic acid to one ounce olivæ oil. All swelling has subsided, and the wounds look healthy. Patient is markedly improved, appetite increased, night sweats slight; in short, his general appearance and condition better. Ordered cod-liver oil ter in die, and stopped the milk-punch.

December 27. Patient makes daily improvement. The wounds are discharging less and looking healthy. He sits up in the ward through the day.

December 30. Began bringing edges of wounds together by adhesive strips, which are changed twice a day and the wounds well cleansed. For his night sweats, which are now trifling, gave 1-50 grain sulphate atropine at night.

January 2. Has had no night sweat for three nights. The wounds are healing kindly, with little or no discharge. The arm is kept at right angles by a tin splint and hung in a broad sling.

January 4. The lower wound is nearly healed; the upper continues discharging slightly a thin, sanious ichor through a small opening, which prevents healing. Whether this is going to be a chronic discharge from diseased bone remaining along the margin of the glenoid cavity I am not yet prepared to say, but none can be felt by the probe at present.

Should caries still remain and require removal, the patient is in a very fair condition for another operation. In regard to the catarrhal phthisis, it is certainly less; there is no cough, expectoration, or night sweats; there is less emaciation and more bodily strength, while all of the physical signs diagnostic of such a stage are hardly appreciable. Let me quote, in this connection, the following from Erichsen's *Science and Art of Surgery:* "A slight degree of pulmonary disease, however, which appears to be rather the result of the long continued irritation of the local affection than of any constitutional taint, need not be a bar to operation. In such cases I have several times had occasion to observe that the general health improved rapidly after the removal of the local disease."

The further history of this case is one of steady but gradual recovery. Between the period of January 4th and April 4th there were several slight interruptions, as it were, to the healing process which may be worth the while to mention. At one time an abscess formed in the infra-scapular region on the posterior surface; it was opened by the knife, and a communication found to exist between it and the wound in the shoulder, the water from the syringe running directly from the one out of the other. After a few strong injections of carbolized water this complete sinus entirely closed. Later on, the lower wound in the arm, which had healed, reöpened at one spot and began discharging pus, while at the same time an abscess formed immediately posterior on the back of the arm. This was opened, and a communication found established between it and the *upper* wound in the shoulder. As considerable pus had discharged from this last abscess, a rubber drainage-tube was inserted, thus affording a free escape to all accumulations. In a few days this was removed, when all discharges ceased, the different openings closed up, and the man himself began making passive motion at the false joint. This has been systematically kept up, and the patient has already begun to have considerable motion and use of the arm.

CORRESPONDENCE.

SOME OBSERVATIONS AT HOT SPRINGS.

Hot Springs, Ark., July, 1876.

Mr. Editor: Many thanks for your invitation to write out some of my experience here for the benefit of your readers. In doing so I shall for the present refrain from any general description of the place, or its peculiarities of appearance, or idiosyncracies of habit. Indeed, Hot Springs is not like any other place in the world as to its geography, fauna, literature, or æsthetics; these are really almost indescribable. I shall confine myself to what medical readers may be supposed to be chiefly interested in.

With perhaps the most of your readers the first inquiry is apt to be, "Is there any thing in it?" To all such I can respond, Yes, very much. I see persons continually leaving Hot Springs in either complete health, or with health greatly improved, who came here a few weeks or months previous, old, chronic, broken-down invalids. This is all the more a matter of notice, from the other well-known fact, that almost all the patients who come here for treatment come here as a last resort; they have exhausted the usual legitimate resources of therapeutics. Indeed, I may say that very many of them have exhausted not only rational resources, but every thing "irregular and defective." Hence the majority of the cases which present themselves here are any thing but promising for hope of relief by any rational plan.

Of course, with the many hundreds who come here every season, many go away with little benefit, and such are apt to decry the springs as utterly valueless. The explanation is easy. Many old chronic cases come to have such radical changes of structure, that no agencies can restore organs to a condition of health. We also find cases presenting themselves at Hot Springs which, from their very nature, should never have come, for at no time in their history could they have been fit subjects for benefit by the treatment here.

The cases which are specially benefited are chronic rheumatism, almost every variety of cutaneous disease, whether simple or specific, but particularly the latter; syphilis in all its manifestations, nasal catarrh, many cases of paralysis and neuralgia (but these not very certain), and within a few years there is coming to be an increasing confidence in the curative control of chronic uterine affections.

Such cases as organic disease of the heart, advanced pulmonary affections, organic disease of the kidneys, are usually rather injured than benefited. Hence it would always be well, and would often save the patient the trouble, fatigue, expense, and disappointment of coming here at all, if he, or his physician for him, would correspond with some of our reliable physicians here before making the experiment.

Your readers will readily infer that the waters from the several hot springs are conveyed to bath-houses in such a way that patients may have a tub bath, a vapor, a pack, or a douche, according to the peculiarity of the case and the instructions of the physicians; so, too, whatever temperature may be desired.

Many invalids come here who have had a protracted experience with drugs, *ad nauseam*, and hence make the mistake of seeking relief from the use of the waters, unaided by medicine or the advice of the physician. Now it is very true that many patients need but little more than this. Indeed, I think there is a disposition to *excessively medicate* at this place, but it is also true that drugs, proper enough elsewhere, act much more kindly and efficiently here, in connection with the baths, than they do elsewhere. Hence most patients find it greatly to their advantage to place themselves at once under judicious professional advice. Many who prefer to do otherwise find that at the end of several weeks they have lost time, and attempt to regain the loss with reduced finances and discouraged faith.

Another mistake which invalids make, is the expectation of a cure in two or three weeks of sojourn here. The hope is not a rational one; so we often see patients here starting for home just as the gradual alterant effect of the treatment is beginning to be of curative advantage. Such patients are frequently coming back a second season to complete a cure that a little patience would have effected at the first visit.

You may perhaps ask me *how* these cures are effected? I am free to say that I think change of climate has something to do with it; the strict diet and habit enforced by most physicians here contribute; relief from business, care, irregular eating, sleeping, and various fashionable dissipations, have their influence; but after all the baths, their cleanliness, sweating, friction, the copious draughts of hot drink, all serve as powerful eliminations, without any regard to the question of peculiar medicinal properties.

About this eliminative power there is no question. I am well satisfied that syphilitic poison, mercury, lead, and a variety of these poisons, are absolutely washed out of the system, and upon the same principle, I presume, the accumulated poisons of alcohol and tobacco are not only washed out, but at the same time the appetite for both of them is destroyed.

These, in brief, are some of the observations I have made here. If there was a more frequent and cordial communication between the profession here with the profession throughout the country, I am very confident patients would find more prompt and satisfactory results from a visit here.

Very respectfully,

EDWARD B. STEVENS, M.D.

SPRINGFIELD, OHIO, *July* 7, 1876.

Editor Ohio Medical and Surgical Journal:

DEAR DOCTOR: You know the trouble that every practitioner has with stricture of the urethra, and especially those practicing medicine in the country, and who are deprived of the advantage of all the improved instruments that the city physicians have. The country doctor may not have use for an aspirator more than three or four times during his life, and when he does the patient prefers going to the city to have it used. So you see it does not pay him to get one. But this is somewhat foreign to what I started out to write you about.

Necessity is the mother of invention. Some time ago, before I had an aspirator, I was left in charge of a patient who was suffering with retention of urine from stricture of the urethra. After repeated trials and failure to introduce the catheter, and the failure of local applications, warm and cold baths, I telegraphed for an aspirator. This was about six o'clock in the morning, and ten o'clock was as soon as I could get it. The patient was suffering agonies, and had been since ten o'clock the night before. The idea struck me that if I could get as much pressure in front of the stricture as there was behind it, that it must stretch or open so as to allow the passage of a catheter. So with this effect in view I got an 8-ounce syringe, a gum catheter, and a foot and a half of rubber tubing. I removed the wire from the catheter, slipped one end of tubing over the open end of the catheter, filled the syringe with lukewarm water, and slipped the point into the other end of the tubing. I now filled the tubing and catheter with the warm water, and introduced the catheter into the urethra up to the stricture, and then pulled it back half an inch. I then clasped the penis with my left hand, so as to compress it on the catheter and prevent the water from escaping. I then had my assistant (an old colored man) force in the water. I kept this pressure up for half a minute and then relaxed my hold with left hand, and with my right I pushed slightly on the catheter and found it passed into the bladder without the slightest resistance. I then removed the tubing from the catheter and emptied the bladder. I have seen this patient since, and he told me he had to tell a physician out West of this plan before he was able to introduce the catheter. Of course, with this plan of using the catheter, care must be taken not to use force enough to rupture the urethra.

Yours truly, C. W. DUNLAP.

NEW YORK, May 27, 1876.

MR. EDITOR: It may not be uninteresting to the many readers of your valuable journal to read brief resumés of the papers and the discussions following their reading before the various medical societies of this city. I will commence by transmitting to you an abstract from memory (having taken no notes of them) of four papers read here during this month. First subject: "Fatty Degeneration of the Placenta as a Cause of Death of the Fœtus," by Charles A. Leale, M.D., before the New York Academy of Medicine; discussed by Doctors Isaac E. Taylor, E. R. Peaslee, Paul F. Mundé, and H. F. Hanks.

Dr Leale enumerated ten cases, occurring in his own practice, where, as he could clearly demonstrate, the premature death of the fœtus in utero was due either to syphilis of one of the parents, or to phthisis; to carcinoma of mother; inflammation of placenta (placentitis); fibrous and fatty degeneration of placenta; from placental apoplexy; from fright; traumatic lesions of mother; from atheromatous changes of the umbilical vessels, etc. The Doctor laid particular stress upon one point, and that was that repeated miscarriages on the part of a woman should lead the attending physician to adopt such measures best adapted to prevent them; and he claimed to have saved one child by the administration of chlorate of potash and iron to the mother, and carefully watching ,the sound of the fœtal heart. If these become weaker and weaker, and the child had attained the eighth month of utero gestation, premature artificial delivery should be induced. In cases of syphilis of mother, the anti-syphilitic treatment of the mother might save the life of her offspring. In phthisis pulmonalis, carcinoma, to which latter disease in the mother he had seen in one case premature delivery follow, the treatment appropriate to these affections should be instituted. The author described the appearances of the placenta where fatty degeneration had taken place; but as the appearances of fat, macroscopically and microscopically examined, is known to all, I will not worry your readers by recapitulating them. One of the placentæ, however, manifested a rare form, for which reason Dr. Leale presented the same before the New York Pathological Society in 1874. This placenta was changed into large multiple cysts, which were filled with liquid oil, so that if the cyst wall was cut in two, the oil could be poured out of it as if from a pitcher.

Prof. Isaac E. Taylor agreed with the author in the view that many repeated miscarriages can be accounted for by the occurrence of syphilis or phthisis in the mother, but had no experience regarding the carcinomatous diathesis producing the same effect. Dr. Taylor doubted somewhat, and I think justly so, the efficacy of chlorate of potash and iron in warding off the effects of such grave constitutional disturbances as claimed by Prof. Fordyce Barker and my friend Charles E. Leale.

Professor Peaslee did not think that the death of the child was always due to disease of the mother or the placental changes, but the child may die first, and the placental function having ceased, this undergoes the changes, as seen also in normal utero-gestation after the eighth month; and he clearly pointed out that if the mother was entirely healthy, but the father syphilitic, the syphilitic spermatozoon coming in contact with a healthy ovum would produce the death of the fœtus in utero often without affecting the mother in the least. In this case the treatment should be directed to the father, and not to the mother who was perfectly well.

Dr. Paul F. Mundé had examined over two thousand placentæ, and never came across one that showed the cystic changes filled with large quantities of oil mentioned by Dr. Leale. He also agreed that syphilis might be transmitted to the fœtus by the father, while the mother was healthy.

Dr. Hawks also stated that, of all the placentæ he had seen, he had never met with cystic oily changes described by Dr. Leale.

Last evening Dr. Sturgis read notes "On the Transmissibility of Syphilis" before the New York Journal Association, and laid principal stress upon one point, namely, that if a father be syphilitic, and his child be born with undoubted signs of hereditary syphilis, the mother of that child must have also been syphilitic. He did not believe that the diseased semen alone could be the cause of the child's affection without previous infection of the mother.

Prof. Fessenden N. Otis remarked that, unless it is proved by undoubted testimony that the semen of a syphilitic father is capable of producing syphilis by inoculation, he was led to believe that syphilis was not transmissible by means of the seminal fluid of the father alone.

Dr. Quackenbos said the following facts were established beyond doubt: First, a syphilitic mother would always and invariably give birth to a syphilitic child; second, that many fathers who had syphilis were the progenitors of healthy children, otherwise how could we account for the fortunate occurrence of seeing so many healthy children born when we know that a great majority of men had, sometime or other of their lives, been affected with syphilis? third, that he knew of several men who would have connection with a syphilitic woman, under his treatment at the time for secondary syphilis, without being infected, requiring a certain predisposition. It is well known that some men will contract so-called gonorrhœa if they have connection with a woman soon after her menstrual period, while others will not be affected in the least. So with the poison of syphilis: some persons with chancre will have very little trouble, while others will have secondary and tertiary symptoms of the severest type. Dr. Bulkley showed a girl twelve years of age who was suffering from hereditary syphilis, affecting the epiphyses of the phalanges of the forefinger and thumb of the left hand—dactylitis.

Bearing upon the question of the transmissibility of syphilis, I remarked that it is proved by the unfortunate occurrence at Pialto, in Italy, in 1862, where a number of inhabitants of the village were the victims of syphilis from impure vaccination of one child (already reported in the clinic under the head of "Notes on Syphilis"). The victims of the bungling carelessness of the vaccinating physician were conveyed at government expense to Turin, and there treated in the hospital. I stated that the question of transmissiblity of syphilis on the part of the father by means of his seminal fluid must be admitted as possible; since pulmonary consumption and cancer are known to be transmitted from father to offspring without the mother ever having suffered from these diseases. The large upper lip, transmitted for centuries from fathers to their children in the now reigning house of Hapsburg, is well known; so also peculiarities, such as six fingers on one hand, will recur in families. Even the features of children are sometimes so strikingly similar to those of their father, that by their resemblance alone I have often recognized children in the street as belonging to a certain family, without having seen them before, or knowing to whom they belonged. Syphilis, therefore, in my opinion, can be transmitted from the father to the child by syphilitic spermatozoa, without the mother having been infected. Let us see what Prof. Isidor Neumann says of this subject, Wiener Klinik, "Diagnostic and Therapeutics of Syphilis of the Skin," March, 1876. Vienna: Urban and Schwarzenberg. Neumann says, page 52: "*Syphilis hereditaria.* Paracelsus was the first who called attention to the occurrence of hereditary syphilis, and already Anger Ferrierus adopted the view that there are three modes of propagating syphilis, viz., 1st. By means of the semen of the diseased father; 2d. By means of the ovum of the infected mother; 3d. By the blood of the mother who for the first time contracted syphilis during her pregnancy." Boerhaave, Astruc, Rosen von Rosenstein confirm the correctness of this view.

Not many years since there were a number of authors who entirely denied the occurrence of congenital syphilis. As such we mention Desruelles, Devergie, Broussais. They considered the manifestations of syphilis in new-born children as the consequences of an infection caused by the genital organs of the mother acting injuriously upon the child during its passage through those organs (infectio per partum). At present there is no doubt that hereditary syphilis exists where the symptons of syphilis show themselves either immediately at the birth of the child, or, what takes place oftener, a few days, weeks, or months later.

The forms of syphilis which we meet with after birth appear principally upon the skin and the mucous membranes, rarely in the bones, often in the epiphysis. The manifestations of hereditary syphilis show themselves ordinarily within the first three monthis, rarely later. Visceral changes, namely, gummata, occur very early, while in utero. A peculiar affection of the calcifying cartilage and the growing bones, at the junction of the epiphysis with the diaphysis, very often appears at an early date, while the symptoms of the latest congenital syphilis show themselves only in later years (ordinarily between the twelfth and sixteenth year), mostly in the form of rapidly progressing serpiginous ulcerations, which affect the skin of the face, especially the upper lip and nose. Some syphilographers consider this form only as a recurrence of congenital syphilis, the first symptoms of which manifested themselves already, during the first year of the child's existence.

With these ulcerations of the skin the same process takes place in the cavities of the mouth, nose and pharynx, and destructions of bones occur simultaneously with them. The long bones, also, are the seats of extensive tophi. A group of such cases, with the symptoms mentioned, Neuman has described—"Allgemeine Med. Zeitung," Vienna, 1859.

The disputed question, whether syphilis is transmitted oftener on the part of the father or the mother, is not yet settled. Hunter assumed that the infection takes place from the mother only, while, on the contrary, Weidiaur, "Traité Complet des Malad. Syphil.," Paris, 1805; Baerensprung, "Die Hereditare Syphilis," Berlin, 1864; J. Mayer, "Zeitschriff d. Gesellsch. d. Aerzte, 1851," and Zeissl are of opinion that the disease of the father is the cause of congenital syphilis in the majority of cases, and that the infection of the *embryo* occurs the more probably the more recent the syphilitic affection of the father at the time of the coitus. Mayer found in forty-nine cases the mother perfectly healthy; Bednar, "Die Krankh. der Neugebornen und Sauglinge," Vienna, 1853, saw in twenty cases that the mother suffered from syphilis, and in ninety-eight cases the mother was healthy. According to Ricord, the transmission takes place from the father as well as from the mother. (*Transmission by means of the seminal fluid, by means of the ovum, or from the circulation of the mother.*) My own experience teaches me beyond a doubt that the infection occurs oftener from a syphilitic father than from a diseased mother.

Cullerier, "De l'hérédité de la Syphilis, Gaz. des Hôpit., 1854," and Von Sigmund speak of the transmissibility of syphilis *exclusively* through the mother, but the latter still admits the possibility of transmission through the father.

Oewre observed that out of one hundred and twelve children born with syphilis, ninety-five had syphilitic mothers, seventeen syphilitic fathers, or where both parents had syphilis. He recommended the introduction of premature artificial delivery, if the mothers were infected at a time when the child has already attained the age of viability. The syphilis of the father can be transmitted to the child without infecting the mother. (This was emphatically denied, and chiefly pointed out as impossible by Sturgiss) Sometimes, however, the health of the mother became somewhat impaired. Swelling of glands, anæmia, painful affections of the bones, occur in the mother without previous occurrence of syphilitic eruptions of the skin. Hutchinson, "J. Caspar, Berlin Klin., Wochenschrift, 1875." Virchow found in the placenta gummata; Oedmannson, atheromatosis, inflammation of the umbilical vessels, and intensified placentaritis; Frankel, "Archiv. f. Gynaekolog., 1873," endometritis placentaris gummosa.

W. Boek ascribes congenital syphilis entirely due to the mother. He rarely saw syphilis transmitted from the father to the child.

If the mother suffered from syphilis before conception, the child gets *hereditary syphilis.* If the mother is infected after having conceived, Boek designates the disease of the child as *syphilis congenita.* If the mother, however, becomes syphilitic during the last two months of her pregnancy, the child is born healthy. The prognosis of congenital syphilis is better than that of the hereditary form. If a woman suffered from constitutional syphilis before her puberty, she bears generally healthy children; if she gets constitutional syphilis after puberty, her children will have syphilis. The child dies during the first few months of pregnancy, and is brought into the world in a macerated condition, or it is still-born prematurely, or dies a few days after its birth. So-called tertiary syphilis of the parents produces only exceptionally syphilis in their children. The first children are, as a rule, more seriously affected than those born at a later period. Boek saw that one mother had twelve syphilitic children. Sometimes the first child is born sick, the second is healthy, and the third is again the victim of syphilitic transmission. Diday, "Traité de la Syphil. des nouveaux nés," etc., Paris, 1854, saw in eighty-six cases of congenital syphilis the appearance of the same the first month twenty-six times, the second month forty-five times, the third month fifteen times. The later after birth the manifestations show themselves the better the prognosis. Syphilis which appears shortly before puberty is only a relapse, but not a latent one, as is generally assumed.

There are some characteristic symptoms which permit us to distinguish the congenital syphilis from that which is acquired after puberty. The paleness and the peculiar waxy lustre of these old and haggard looking children's skins of the face, the scarcity of their eyebrows and eyelashes, the difficulty of their breathing through the nose, will point to the necessity of a thorough exploration and examination of these cases. The maculæ appear in children more in the shape of pale reddish or dirty-brown colored changes, and are generally perceived at birth. If these appear after birth, then they are acquired. These are to be found on the trunk, on the extremities, especially the soles of the feet. The heels soon become excoriated and ulcerated. Affections of the mucous membranes, of the cavities of the nose, the mouth, the pharynx and the larynx, are ordinary manifestations of the disease. They are generally found with plaques muqueuses. The papules are very rare, and, if present, are covered with scales.

The pustules show less infiltration of the neighboring or adjacent parts. Generally speaking, the characteristic copper color of syphilitic eruptions in adults is wanting in syphilis of children, in the majority of cases. The cause of this difference is easily explained by the fact that children suffering from congenital syphilis are generally anæmic and ill-nourished, and consequently the skin is shrunken, withered; there is less turgor than is found in healthy adults suffering from acquired syphilis. The appearance of syphilitic manifestations in the bones of syphilitic children is met with frequently, according to the recent observations of Waldeyer and Körner, "Beiträge zur Kenntniss der hereditaren Knochensyphilis," Virchow, Arch. B., 55. I saw two cases; the one with necrosis of the turbinated bones, the other with perforation of the hard palate. "Uber Hautkrankheiten d. Kindl. Alters, l. c." The epiphysal cartilages, especially at the peripheric ends of the radius and ulna, sometimes the humerus and the clavicula, are similarly affected, according to Wagner, "Archiv. J. Dermatol. und Syphilis," 1871, and Kassowitz, "Verschrb. d. Syphilis, Med. Jahr-Bucher, 1875." On the legs the swellings take place two inches above the malleoli; also on the phalanges, especially on the first, plainly perceivable in many instances. R. W. Taylor, "Syphilis of the Os. Syst. in Infants," New York, 1875. Entirely different from the affection described is that form of syphilis making its appearance at the age of twelve to fifteen years, called syphilis tarda. In this latter affection the first manifestation of the disease is periostitis, caries, and necrosis of bones, and the occurrence of larger gummata in these.

Hutchinson, "A Clin. Mem. of Certain Diseases," London, 1863, describes a peculiar affection of the teeth produced by congenital syphilis."

A week ago yesterday, Dr. George H. Fox read a paper before the New York Journal Association "On Bibulous Paper as a substitute for Lint and Sponges." It is well known that teeth, when being filled by dentists, must be free from moisture, in order that the filling—gold leaf or amalgam, or whatever substance be used—adhere to the walls of the cavity and be there retained after hardening. If moisture be mixed in, the filling soon falls out. Dentists, therefore, cover the excretory ducts of the salivary glands, during their operations in the mouth, with a napkin, or, lately, with a paper called bibulous or Japanese paper. Dr. Fox observed how easily this bibulous paper absorbed moisture, and he applied it experimentally to chancroids, to excoriated nipples, to the os uteri in cervicitis, to the vagina in vaginitis, etc. He also used the same for arresting hemorrhage of the nose and other parts of the body. In coryza, where the use of handkerchiefs become themselves the source of contagion, and infect the person using them, the bibulous paper answers an excellent purpose, since it can be burned as soon as used. For the cleansing of wounds it is better than either cotton, lint, sponge, or oakum. During their menstrual periods women may use it, as is the case in Japan, instead of napkins. It can be medicated, and as such it forms a valuable dressing, even in burns and scalds, and eruptions of an exudative nature.

Before the New York County Medical Society we had a paper "On a Lost Art in Surgery," by Prof. Crosby, of Bellevue Hospital Medical College. Every one present thought that the lost art to be resuscitated was the subject of bleeding, but to our surprise Dr. C. claimed that "cleanliness was next to godliness." The Doctor gave a sketch of his services during the war of the rebellion as the first surgeon in the United States service who built a division hospital on the pavilion plan. He claims the priority of the idea of having had constructed such a hospital in the early part of the war, before that plan was made use of by the then existing sanitary commission. He gave a sketch of the diet, the cleanliness of patients and nurses, as well as attending physicians; and the results obtained simply by cleanliness, disinfectants, and ventilation the Doctor praised highly as main supports to a successful treatment of medical and surgical cases. But it seemed to me the main point the Doctor desired to bring forward under cover of cleanliness was, that large and costly structures might be used just as advantageously in the treatment of the sick as the proposed pavilions. The New York Medical Record published a series of articles on hospital construction, in which it was proved satisfactorily, to me at least, that in future the pavilion plan of hospitals will prevail, if the comfort and welfare of the sick is taken only into consideration, leaving out all questions of college education and facilities for medical students to obtain knowledge. Prof. Crosby stated that a ward which had been used as a lying-in ward at Bellevue Hospital, and had epidemics of puerperal fever and erysipelas in it, was transferred into a healthy surgical ward by the abundant use of chlorine gas, which, having an affinity for hydrogen, one of the elements necessary for the propagation of contagious and infectious material, destroys the germs, or whatever it might be, that cause infectious diseases. There never was a healthier ward, Dr. Crosby asserted, than the one in question, and he tried to convince his hearers that every infectious disease can be stamped out by the free use of chlorine, as used by Prof. Doremus at Bellevue Hospital.

Professor Janeway showed a spleen, taken from the body of a patient, which weighed seven pounds and a half, and extended from the seventh rib down to the crest of the ileum. Patient had leucocythæmia, and never had intermittent fever. Dr. Sell mentioned a case where a spleen reached even below the crest of the ileum, and could be felt through the vagina.

I am, dear sir, yours, respectfully,

DR. RUDOLF TAUSZKY.

EDITORIAL.

It was our pleasure to attend the meeting of the State Medical Society, held at Put-in-Bay on the 20th, 21st, and 22d days of June last, and as the subject is one of professional importance, we propose to make a few remarks connected with this meeting.

The Society met last year at the same place, and has decided to meet there again next year. It has much to recommend it—the beauty of the scenery, the refreshing coolness of the lake, the pleasures of sailing and fishing during the hours of recess; and, above all, the bringing the members all together under one roof, tending, as nothing could to the same degree, to promote friendly intercourse and acquaintance, and to secure prompt attendance on the sessions. These are some of the reasons, and very good ones, too, for holding the Society's meetings at this delightful and popular summer resort. But there is something also to be said on the other side of the question.

The design of State Medical Societies is not solely to meet once a year, for scientific improvement and discussion, and to enjoy one another's society during a few days of welcome rest, but also to unite the *whole* body of the profession throughout the State in an organic whole, representative, influential, and powerful.

There are two plans of meeting which this view suggests, either that the meeting should be held always at the same place, central and accessible, like the Capital, or that it should be held at a different place each year, for the sake of drawing in all the physicians of each locality in turn. We who were there this year would doubtless all like to meet at Put-in-Bay every year, but would it be best for the Society? We noticed the usual drawback to the usefulness of such meetings, to a degree even more than usual at Put-in-Bay. This was the consumption of too much of the Society's time with so-called ethical business, much of which might without injustice be characterized as mere wrangling. Of course we can never hope to see these unfortunate subjects of discussion kept out of the Society altogether—that is clearly impossible. But as much of such business as possible should be turned over to the appropriate committee, or committees, and kept out of the general meetings. Of course we can not here indicate exactly how this is to be done, but we may safely say to those in authority, any step in this direction will be thankfully welcomed by the Society at large.

Of the President's address we wish to speak in words of strong and hearty commendation. We were spared the usual glorification of the profession, with which we have been dosed *ad nauseam*, and which we know all about. We were not called upon to listen to bitter and useless denunciations of quackery, which always remind us of Quixote's charge on the wind-mills. Neither our love of self and of one another, nor our hatred of quacks, was appealed to, but instead we were treated to a plain, sensible, useful discourse, of great practical importance to us all, and on which we felt that the essayist was competent to instruct us all. Not only was the address a good one, but the precedent is a good one, too. If those who are engaged in special departments of practice would oftener forget themselves, and remember the general practitioners, who constitute the bulk of the profession, and in plain, unpretentious style give us the results of their more extended experience on subjects which, though within their special sphere, are still of vital importance to us all, we should think all the more of them, and gladly acknowledge the favor conferred. We were pleased to notice an unusual absence of long, prosy papers. At such meetings gentlemen should present short and practical papers, calculated to call attention to special points, and to elicit discussion, and thus add to the life and interest of the session. There are many papers that are very valuable and important in themselves, which are yet entirely out of place at such gatherings, however much they may grace the pages of the transactions. Why can not they be simply read by title and referred, so that we may have them for study and reference, without being obliged to inflict them on all, when perhaps they interest only a few?

We would suggest that a very useful addition to the machinery of the Society would be an executive or business committee, to sit during the session, arrange the order of exercises for each meeting, keep out what is clearly not to edification, and prevent waste of valuable time. If we have ventured to criticise some things, and suggest some improvements, we feel all the more bound to say that, on the whole, the occasion was one of great pleasure and improvement; and they who staid away suffered a serious loss. May we live to enjoy many more meetings of the Ohio State Medical Society.

REVIEWS.

A Manual of the Diseases of the Eye. By C. MACNAMARA, F. C. A., Surgeon to the Westminster Hospital. Third Edition. 8vo. pp. 614. Philadelphia: Lindsay & Blakiston. 1876.

That this work has met with general favor by the profession is evinced by the call for a third edition.

The first was published in 1868, and the second in 1872, during the author's residence in Calcutta. Since his return to Europe this revised edition has been brought out. Dr. Macnamara's book was written mainly for students, to place before them a clear view of the present state of knowledge of the subjects upon which it treats. This edition is not much larger than the second, and contains very few changes.

In Chapter I., which contains a brief account of the anatomy and physiology of the eye, the author objects to the current view of the mechanism of accommodation, which is, that it is effected by the ciliary muscle.

It seems to him that the increase in convexity of the anterior part of the lens, in the act of accommodation produced by this muscle, has not been demonstrated On the contrary, it seems more probable that these minute and rapid changes are brought about through some power of changing its form inherent in the lens itself, rather than that a band of unstriped muscle, situated at some distance from the lens, and which can only act on it through some intermediate structure, should induce them. Moreover, he finds difficulties in the way of the generally received doctrine. The ciliary muscle is composed of unstriped fibre, which is not usually under the control of the will; it can only act through the suspensory ligament, which is reflected from the ciliary body to the anterior surface of the lens capsule. Consequently, if the bulk of the ciliary body were to increase or diminish, the tension of the suspensory ligament should vary in a corresponding degree, and with it the accommodation of the eye, provided this process be dependent on the tension or relaxation of the suspensory ligament. Again, the ciliary muscle may be divided, and the accommodation of the eye continue in working order. Lastly, the whole of the iris has been torn away from its attachment, and the ciliary muscle, therefore, probably damaged, and yet the alteration in the curvature of the lens has gone on as actively as ever, proving not only that so rude an injury does not destroy the accommodation of the eye as long as the lens remains *in situ*, but, further, that these changes do not depend on the pressure exerted on the iris by the lens, as was at one time supposed. The author has also made some investigations into the minute anatomy of the primitive muscular fibre, and also of the lens fibre, which appear to him to establish a structural analogy between them, and which have forced him to the conviction that the lens itself is composed of contractile tissue, and that the complex arrangement of its fibres is in some way (how, he does not say,) subservient to the alteration in the curvature of its surface which occurs in the act of accommodation.

So far as we are aware, this view of the mechanism of accommodation is held by Dr. Macnamara alone. In the absence of direct demonstration as to the mode in which the contractile fibres of the lens produce a change in its curvature, the theory of Donders, that accommodation is brought about by the contraction of the ciliary muscle, seems to us much the more rational view.

It would be out of place here to enter into the elaborate arguments of Donders in proof of this theory. He admits, however, that while the question has been reduced to a small compass, it has not, as yet, been definitely determined by what mechanism the action of the muscle alters the form of the lens.

His views are accepted, however, by the highest authorities of the day as the nearest approach to a positive demonstration.

In Chapter II. the author gives us, as a result of his experience in India, some valuable descriptions and drawings of the normal appearances of the fundus oculi of the natives.

The fundus oculi among the natives of India is very different from that which is presented among Europeans. This contrast between the color of fundus in the two races is shown in two well executed chromos—Pl. IV., figs. 1 and 2. "This difference arises from the deep brown or black pigment which fills the hexagonal cells of the choroid in the native, and obscures the vascular structure, so that the fundus of the eye appears of a brownish-gray color; whereas in the European the incident light being reflected principally from the vascular network of the choroid, it is of a *crimson orange* hue. The precise tint must, of course, vary in each individual, depending upon the depth of coloring of the pigment contained in the hexagonal and choroidal cells."

We now pass over several chapters, with the general remark that they are excellent and concise upon the different topics of which they treat (the chapter on affections of the orbit is especially worth reading), to the chapter on conjunctival diseases. With regard to the form of caustic to be used in the treatment of prevalent conjunctivitis, the author recommends the mitigated pencil of nitrate of silver, which is composed of equal parts of nitrate of silver and nitrate of potash, or one part of the former to two of the latter.

We think this bad advice to propagate, and venture to say that the use of nitrate of silver in such strength can not long be continued without scarring the conjunctiva. In our hands the use of solutions of nitrate of silver have been far more satisfactory, and it is rarely necessary to employ a stronger one than ten grains to the ounce, while in milder cases a five-grain solution is strong enough.

Diphtheritic conjunctivitis, we are told, is a rare disease in India; but the author goes rather too far when he says "it is rare to meet with a case among the inhabitants of any part of the world, except those of Belgium and certain parts of Germany," for although this is rather a rare form of disease in this country, cases are recorded every year in the reports of our infirmaries.

In the chapter on diseases of the iris, among the causes of inflammations of this structure, the interesting observation is made that in nearly all cases of advanced leprosy plastic iritis is present. This accords also with the observations of Bull and Hanson. (Leprous Diseases of the Eye. Christiania. 1873.)

These authors, from a residence in a country where this dreadful malady is common, have had unusual opportunity for observation.

In speaking of the treatment of iritis, the author says: "As a general rule, it may be affirmed that mercury is never to be employed in iritis, except in cases of syphilis; in other instances of iritis this drug is seldom required." In the second edition of his book it was also stated: "In other cases this drug is useless and positively injurious." Thus it will be seen that the opinion of the author on the propriety of using mercury in iritis seems to be somewhat less positive than it was. Our experience does not accord with that of the author, and we would so far dissent from it as to lay down the rule that mercury should be employed in all cases of plastic iritis, whether of syphilitic origin or not, so soon as it is apparent that the synechiæ are not readily broken by the use of atropine alone. In many cases it is not necessary to carry its use so far as even to affect the gums before the synechiæ give way.

In the treatment of the iritis, the indication of the greatest importance is to effect a cure without leaving behind any attachment of the iris, which always renders the eye subject to recurrences of inflammation, and, in many instances, we are certain that this is best accomplished by the use of mercury. On page 346, under the head of "Diseases of the Anterior Chamber," mention is made of the occurrence of *Filaria pupillosa* in the anterior chamber of the human eye. Dr. Macnamara has published two such cases in the sixteenth number of the *Indian Annals.* "There is no possibility of mistaking the appearance presented by entozoa of this kind in the anterior chamber; the creature may be distinctly seen moving about in the aqueous. Entozoa in this situation excite violent inflammation of the iris and cornea, and probably abscesses of the eye-ball, unless they be allowed to escape from the eye. This may usually be effected without difficulty, by puncturing the cornea with a narrow-bladed knife, which is to be rotated edgeways as it is withdrawn from the eye, allowing the aqueous to escape with a gush, and with it the entozoan. Filaria are very frequently seen in the eye of the horse in many parts of India."

In speaking of the ætiology of retinitis pigmentosa, the statement is made that the view that this disease is commonly to be met with among the offspring of persons nearly related to one another by marriage has not been borne out in his experience. In India the natives are most scrupulous in observing the restrictions they place upon the intermarriage of relatives; and yet Dr. Macnamara says: "I have seen a number of instances of the disease among my native patients." He thinks that this disease is usually associated with hereditary syphilis. The points in this book which have specially interested us are such as the author has derived from his experience and observations among the natives of India, but there are many others worthy of notice, did space and time permit.

The book, on the whole, is a good one, and a pleasing evidence of the scientific activity displayed by a worker in an isolated field of observation. While it is written mainly as a condensed manual for the students of his college, it can not fail to interest the general reader. The marginal notes on the contents of the paragraphs serve to greatly facilitate reference.

It is to be regretted that the printers have not done their work as well as Dr. Macnamara has his. The book is badly printed; in fact, for difficulty of reading it will compare favorably with the print of some of our daily papers.

T. R. P.

Transactions of the American Ophthalmological Society. Eleventh Annual Meeting. Newport, July, 1875. New York: Wm. Wood & Co. 1876.

This volume is much smaller than the transactions of the year before, which is mainly owing to the omission of the usual "Report on the Progress of Ophthalmology," which has hitherto been an instructive and interesting feature, and it is to be hoped will not be permanently discontinued.

Dr. O. D. Pomeroy contributes a paper on "A Case of Nystagmus, associated with Concomitant Convergent Strabismus in Emmetropic Eyes, relieved by Correction of the Squint." The strabismus was about four lines, and was cured by two tenotomies of the left and one of the right internal rectus. The acuteness of vision was 20-70 in the right and 10-70 in the left, the diminution being due to an old choroiditis.

The final effect of the operation is thus stated by the author of the paper: "Ordinarily there are no signs of nystagmus. If the eyes are turned very strongly to the left a slight oscillation of the eyes is detected, which immediately disappears on placing the eyes in a more natural position."

The result obtained is unusual, for tenotomy does not generally affect the nystagmus. Again, we would remark that in every case of nystagmus there is a point of direction in which the eyes remain quiet.

Dr. David Webster, of New York, reports "A Case of Spontaneous Cure of Sub-retinal Effusion, with an Analysis of Twenty-one Cases of the same Disease."

The case was treated by the supine position, with the result of securing a re-attachment of the detached retina. In the analysis of the cases no similar good result was secured, so that the result obtained in this case must be considered exceptionally good.

Dr. Wadsworth said that he had also seen a partially separated retina become replaced, but without treatment by the recumbent position.

A most interesting contribution of "Rare Cases, with Practical Remarks," is made by Dr. E. Williams, of Cincinnati. The series of cases in this paper are the following:

Dislocation of Lens, several spontaneous and one traumatic; *Basedow's Disease.*—In both of the cases of this disease reported, V. Græfe's operation for narrowing the palpebral fissure, by closing the lids for about an inch at the outer canthus, was performed. In the first case destructive inflammation, sloughing of the cornea; from the protracted pain and suppuration death ensued about four weeks after the operation.

The other patient was a healthy woman of forty years. The operation was done for the same reason. Dangerous inflammation ensued two days after, but was subdued by removing the stitches, and treatment by frequent instillations of atropine. Dr. W. thinks "that the pressure of the narrowed commissure in both of these cases caused strangulation and subsequent inflammation." The writer of this abstract has lately seen a case in which the operation, made only to relieve the deformity, was followed by no untoward symptom, and resulted in great relief to the appearance of the eyes.

Anesthesia retinæ.—Three cases are reported; two were cured by hypodermic injections of strychnine; the third was unimproved,

Binocular temporal hemiopia.—The patient æt. 44, and a robust, healthy-looking man. Six years before he had epipleptic fits, but had been free from them for four years. Has not complained much of headache, but of severe pain in back of neck; nausea; no vomiting; impairment of intellect; the outer half of the field of each eye; no lesion of fundus. "In this instance the lesion must have existed at the anterior part of the optic chiasma, between the roots of the optic nerves." It is to be regretted that the patient was lost sight of, preventing the possibility of a *post mortem.*

Strabismus, with rigidity of the muscle.—Four very interesting cases are given, in which the performance of tenotomy was rendered difficult by the rigidity of the internal rectus. In one case the hook was gotten under the muscle with great difficulty, and when the tendon was cut a drop of vitreous made its appearance. Four days, with the eyes constantly closed, brought about recovery without the slightest pain or trouble. The result of the operations were good in all of the cases, but there was great reduction of mobility.

Dr. Strawbridge, of Philadelphia, under the title "Ophthalmic Contributions," reports some interesting cases.

Hysterical blepharoptosis, which was treated by the plan proposed by Dr. Mathewson, by means of a gum band fastened to the skin of the lid and forehead. On account of the difficulty encountered in securing a firm attachment of the rubber, adhesive plaster was substituted. Several weeks of treatment effected a cure.

Foreign bodies in the Eye-ball.—Three cases are enumerated. In the first an iron splinter remained for two years in the sclerotic without producing any great degree of reaction. In the second case a foreign body passed through cornea, iris, and lens, and lodged in sclerotic, near the papilla. The injured eye was removed ten years later on account of sympathetic trouble of the other. In the fourth case a foreign body remained encysted in the iris for twenty-one years, without producing any trouble. In one other case a foreign body was removod by iridectomy.

Connective tissue growth in Vitreous, the appearance of which can be best understood by reference to an accompanying plate. A case is also reported in which cholesterine crystals were found in the anterior chamber, and on the anterior surface of the iris, as well as in the vitreous humor. The eye-ball was atrophied by inflammatory process, and removed on account of sympathetic trouble in the other.

Dr. Stevens, of Albany, relates a case in which he extracted a foreign body from the retina by the aid of the ophthalmoscope, with the result of preserving the appearance of the eye, although there was no useful vision.

William Thomson, of Philadelphia, contributes an original paper, in which he maintains that "staphyloma posticum may be induced by astigmatism."

"On the Increase of Refractive Power of a Plano-cylindrical Lens when Rotated about the Axis," is the title of a mathematical paper by Hoy, of Boston, which can not be understood except by reference to his formulæ and diagrams.

"Some Peculiar Phenomena attending a Case of Sudden Temporary Loss of Hearing and Sight." H. W. Williams, of Boston. The case of a little girl who became suddenly deaf, and four weeks after blind. There being no abnormality of the organs of sight or hearing, and no cerebral symptoms, the condition was supposed to be due to reflex irritation from worms in the intestines. The expulsion of a large amount of tape-worm was followed by complete restoration of sight and hearing.

"Two Cases of Vascular Disease of the Orbit." This is a continuation of a report of two cases, one of which was first published in the American Journal of Medical Sciences, July, 1870, and a brief account of the other was given in the same Journal by Dr. Newton. In the first case, aneurism by anastomosis of the left orbit, with hypertrophy of the whole side of the face. There has been very little change since the last publication, except that the aneurismal bruit had almost ceased. The other case is one of pulsating exophthalmos following injury, with probable fracture of the skull. Treatment by continuous, and afterwards intermittent, pressure of the carotid was employed at first without decided result. The patient, however, still kept up intermittent pressure at frequent intervals each day. At the end of six months he wrote to report improvement, and at the end of two years the prominence of the eyes had entirely disappeared. There was still some bruit, and he continued to practice compression for several months longer, until all symptoms disappeared, which was three years after the beginning of treatment. The Doctor then makes some very interesting reflections on the difficulty of diagnosis of so-called "orbital aneurisms," and concludes his interesting paper by a summary of the cases in literature in which post-mortems were recorded, with the following analysis of fourteen cases: Venous clot from phlebitis, four cases; venous dilatation from phlebitis, two cases; malignant growths, three cases; post-orbital varix, two cases.

A most interesting case of pulsating exophthalmos of both eyes, in which the common carotid was ligated, with the result of entirely curing the patient, as well as restoring vision, which was entirely abolished, is reported by Dr. E. Gruening in the Archives of Ophth. and Otology, Vol. V., No. 1. Dr. G. has also written a very interesting historical and critical paper on the literature of the subject, which he read last winter at the New York Medical Library and Journal Association, and which we hope will be published.

Dr. Thomson, of Philadelphia, reports "A Case of Sektor-like Defect of the Field of Vision." The patient, æt. fifty, was in good health at the time of examination; four years ago had sudden vertigo; was insensible for a few moments; his hands were numb for some days; his vision was disturbed then, and remains so until now; there is partial loss of vision in the upper and left part of each field. It was an interesting fact that the macula was not involved in the blindness which affected the retina, both above and below it. The conclusion is that "there is little doubt that four years ago there was an apoplectic attack which induced the partial hemiopia, and that it was caused by a lesion of the left side of the brain."

"An Obituary Notice of Dr. Edward Delafield," the first President of the Society, was presented by Drs. Dix and Williams, of Boston.

"A Case of General Sarcoma of the Choroid Probably Congenital." Dr. R. J. McKay and Dr. H. C. Eno. The day after the patient's birth the right eye and right side of face were swollen. When the child was three and a half years old the eye was enucleated. Dr. A. Jacobi, who saw the patient, thought that the disease was probably a sarcoma which started early in life from the dental papilla, and that it extends into and encroaches upon the cavity of the antrum. Dr. Eno says: "The case is one of general choroidal sarcoma, without the formation of a distinct tumor. Inasmuch as the eye-ball was enlarged and protruded at the time of birth, and there existed a congenital tumor of the antrum, it is not improbable that the new growth in the choroid also commenced during intra-uterine life."

"A Case of Consecutive Enucleation of Both Eyes for Recurring Glioma." By C. R. Agnew and H. C. Eno, New York. At the age of thirteen months the patient came to Dr. A. He advised immediate enucleation of the left eye on account of glioma. Six months after the right eye was enucleated for the same reason. There was no return of the growth in the orbits after eighteen months. Dr. Eno reports: "In one eye half of the vitreous, and in the other nearly the whole of it, was occupied by a mass of glioma."

Dr. Green, of St. Louis, reports favorable results from iridotomy by Von Wecker's method, and also negative results of "Examination of the Eyes of a Criminal Executed by Hanging." The examination showed no lesion of the lenses or capsules, or of the retina or choroid of either eyes. Dr. Green also recommends the use of a solution of atropine in castor oil, and recommends the substitution of the alkaloid for the salt, the latter not being readily soluble in oil.

"Improvement in Spectacle Frames." By H. D. Noyes, of New York. He suggests a contrivance for making reversible frames. To overcome the spherical aberration for glasses of short focus, he recommends that two plano-convex lenses be put together, with their convex sides towards each other.

Dr. Noyes, in connection with Dr. Webster's paper, said that "among forty-three cases of sub-retinal effusion in private practice, he had only seen one in which the fluid was spontaneously absorbed."

A note from the Secretary informs us that eight cases of spontaneous cure of sub-retinal effusion will be reported by Dr. Althof at the next meeting.

The next meeting of the Society will be held in New York City September 11, 1876, one day before the meeting of the International Ophthalmological Society. T. R. P.

REPORTS OF SOCIETIES.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

A convention of representatives of numerous medical colleges of the United States was held in the hall of the Jefferson Medical College, of Philadelphia, June 2d and 3d, 1876, in pursuance of the following call:

Louisville, Ky., May 15, 1876.

Following a general correspondence with the various medical colleges of the United States, the undersigned issue this call for a convention, to be held in Philadelphia, on Friday, June 2, 1876, four days in advance of the meeting of the American Medical Association. The object of the convention is to consider all matters relating to reform in medical college work.

That decided results may be reached, the faculty of each college is requested to send one or more delegates, clothed with *plenary* powers to determine final action on every question.

Should any college find it impracticable to send a representative, it is hoped that it will set forth fully by letter to the convention the views it may hold touching the suppression of existing evils and methods of practical improvement.

Officers of the following colleges have informally signified their hearty approval of the movement:

Jefferson Medical College, College of Physicians and Surgeons, N. Y., Bellevue Hospital Medical College, Ohio Medical College, Miama Medical College, Rush Medical College, Detroit Medical College, Louisville Hospital Medical College, Medical Department of University of Louisville, St. Louis Medical College, Keokuk Medical College, Cleveland Medical College, Starling Medical College, Medical Department of Georgetown College, Medical Department of Columbian University, Long Island College Hospital, Medical Department of Syracuse University, Evansville Medical College, Indiana Medical College, Medical Department of University of Nashville, Atlanta Medical College, Mobile Medical College, Savannah Medical College, Augusta Medical College.

The convention will be called to order in the hall of the Jefferson Medical College at 11 o'clock A.M. on the day above named.

J. B. Biddle, M.D., Jefferson Medical College.
Wm. H. Mussey, M.D., Miama Medical College.
John T. Hogden, M.D., St. Louis Medical College.
J. Adams Allen, M.D., Rush Medical College.
W. T. Briggs, M.D., Med. Dep't University of Nashville.
J. M. Bodine, M.D., Med. Dep't University of Louisville.

At the hour named the following representatives assembled:

Jefferson Medical College—Prof. J. B. Biddle and Prof. S. D. Gross.
Medical Department University of Pennsylvania—Prof. R. E. Rogers.
College Physicians and Surgeons of New York—Prof. Edward Curtis.
Medical Department University of Louisville—Prof. L. P. Yandell, Jr., and Prof. J. M. Bodine.
Hospital College of Medicine of Louisville—Prof. J. A. Larabee and Prof. T. C. Wilson.
Long Island Hospital Medical College—Prof. J. H. Raymond.
Medical Department University of Iowa—Prof. E. Clapp.
College of Physicians and Surgeons Syracuse University—Prof. H. B. Wilbur and Prof. Van Duyn.
Chicago Medical College—Prof. L. Curtis.
Medical Department University of Georgia—Prof. E. Geddings.
Indiana Medical College—Prof. T. B. Harvey and Prof. L. D. Waterman.
Medical Department University of Wooster—Prof. W. J. Scott.
Cleveland Medical College—Prof. J. H. Bennett and Prof. Heims.
Detroit Medical College—Prof. E. W. Jenks and Prof. L. Connor.
Starling Medical College—Prof. S. Loving.
Medical Department University of Vermont—Prof. H. D. Holton.
St. Louis Medical College—Prof. J. L. B. Alleyne.
Atlanta Medical College—Prof. W. F. Westmoreland.
Medical Department University of Nashville—Prof. W. T. Briggs.
Medical Department Vanderbilt University—Prof. T. A. Atchison.
Missouri Medical College—Prof. A. P. Lankford.
Keokuk College Physicians and Surgeons—Prof. J. J. M. Angier.
Columbus Medical College—Prof. J. F. Baldwin.

On motion of Prof. Yandell, Prof. J. H. Biddle was elected President of the convention, and on motion of Prof. Bennett, Prof. Leartus Connor was elected Secretary.

On motion of Prof. E. Curtis, it was

Resolved, That the action of the convention shall not be considered binding upon the colleges represented unless indorsed by their respective faculties.

On motion of Prof. Gross, it was

Resolved, That a committee be appointed to submit business for the consideration of the convention, to report at the afternoon session.

The Chair appointed as this committee Prof's. Bodine, Gross, Geddings, Holton, and Scott.

The convention adjourned until four P.M.

Pursuant to adjournment, the convention reassembled at four P.M., the President in the chair.

The minutes of the last meeting were read and approved.

Prof. Bodine, from the committee to prepare business for the convention, reported the following questions for its consideration:

1. Shall the beneficiary system, with its present abuses, be condemned or indorsed?

After discussion, on motion of Prof. E. Curtis, the following preamble and resolutions were adopted with reference to question first:

Whereas, The practice of reducing or remitting in individual cases the established fees of a college has the objectionable feature of discriminating between students who may be equally deserving, and opening the door to possible gross abuses; therefore,

Resolved, first, That this convention regards the above privilege as one to be deprecated in general, and, if put into practice at all, to be exercised both rarely and reluctantly, and only in unusual circumstances, and after unsolicited application by proven deserving candidates.

Resolved, second, That any thing like a wholesale system of such reduction or remission of established fees, or any open solicitation of recipients of such favors, be regarded as in the highest degree improper, and that any college indulging in such practices deserves to forfeit its place on the *ad eundem* list of medical colleges.

Question 2. Shall two consecutive courses of lectures in one year entitle students to become candidates for graduation?

On motion of Prof. E. Curtis, it was

Resolved, That it is the opinion of this convention that no two consecutive sets of lecture tickets shall be regarded as fulfilling the usual prerequisites of instruction for graduation, where the time between the beginning of the first course and the end of the second is less than fifteen months.

Question 3. Shall any faculty under any circumstance issue a diploma not bearing the graduate's name?

On motion of Prof. Waterman, it was

Resolved, That no medical faculty should issue a diploma not bearing the graduate's name.

It was ordered that the meetings of the convention shall be at ten A.M. and four P.M. On motion, the convention adjourned.

The convention reassembled on Saturday, June 3, at ten A.M., the President in the chair.

The minutes of the previous meeting were read and approved.

On motion of Prof. L. P. Yandell, Jr., the regular order of business was suspended, and communications were read from the faculties of the following medical colleges: Louisville Medical College, Kentucky School of Medicine, Evansville Medical College, Rush Medical College, Medical Department University Louisiana, Medical School of Harvard University, Savannah Medical College, Cincinnati College of Medicine and Surgery, Medical College of State of South Carolina.

On motion of Prof. Atchison, these communications were placed on file.

Question 4. Shall this convention resolve itself into a permanent organization?

On motion of Prof. Atchison, it was

Resolved, That the question be referred to a committee of five, to report at the afternoon session.

The Chair appointed as this committee Prof's. Atchison, L. Curtis, E. Curtis, Yandell, and Scott.

On motion of Prof. Rogers, the President and Secretary of the convention and Prof. Atchison were appointed a committee on publication.

Question 5. Is there any reason why the customary diploma fee shall be abolished?

On motion of Prof. Rogers, it was

Resolved, That it is the sense of the convention that the diploma fee should not be abolished.

Question 6. Is it advisable to adopt a graded course of study?

On motion of Prof. Bodine, the following preamble and resolution were adopted in reference to this question:

Whereas, A knowledge of the elementary branches of medicine should precede a study of the practical branches.

Resolved, That, in the hope of inducing students to prolong and systematize their studies, this convention recommends to all medical colleges to offer to students the option of three courses of lectures, after a plan similar to the following: Students who have attended two full courses of lectures on anatomy, chemistry, materia medica, and physiology, may be examined upon any of these subjects at the end of their second course. During the third course such students may devote themselves to the lectures upon the theory and practice of medicine, surgery, obstetrics and diseases of women and children, upon which subjects only they shall be examined at the final examination for the degree of M.D.—their standing, however, to be determined by the results of both examinations.

On motion, adjourned until four P.M.

The convention reassembled at four P.M., the President in the chair

The minutes of the last meeting were read and approved.

Prof. Atchison, from the committee to whom the subject of permanent organization was referred, reported the following resolutions:

Resolved, 1. That this *convention* now proceed to form a Provisional Association of American Medical Colleges under its present officers.

Resolved, 2. That when the Association adjourns it shall adjourn to meet at the call of its President.

Resolved, 3. That the various medical colleges be invited to take into consideration the project of forming, at the next meeting of this Provisional Association, a permanent Association of American Medical Colleges.

Resolved, 4. That for the furtherance of this object, a committee of three be appointed at this meeting to confer by letter with the various colleges, and invite their views on the proper object and plan of such proposed organization; and upon the receipt of the same to draft a constitution and by-laws for a permanent Association, to be submitted at the next meeting of this Association.

Resolved, 5. That the advisory resolutions upon matters of college policy passed by this convention be printed and forwarded to all regular medical colleges in the United States for their consideration.

The Chair appointed as committee to carry out the foregoing resolutions Prof. T. A. Atchison, Prof. Edward Curtis, and Prof. L. P. Yandell, Jr.

These resolutions were adopted, and the convention resolved itself into the Provisional Association of American Medical Colleges.

Question 7. Is it proper for a regular college to have any kind of alliance with homœopathy?

On motion of Prof. Atchison, it was unanimously

Resolved, That, in the opinion of this Association, medical colleges ought not to recognize or hold fellowship with any school or its alumni in which irregular medicine is taught as a part of the curriculum.

Question 8. Can college fees be made uniform?

On motion of Prof. Geddings, this question was referred to a committee of five, to report at the meeting of the Association to be held in 1877.

The Chair appointed Prof's. Geddings, Gross, Angier, E. Curtis, and L. Curtis this committee.

On motion of Prof. Biddle, the following resolution was unanimously adopted:

No degree in medicine should be conferred, under any circumstances, except after an examination in person of the candidate upon all the branches of medicine.

On motion of Prof. Atchison, the thanks of the Association were tendered to the President for the able and impartial manner in which he had discharged the duties of the chair.

On motion of Prof. Yandell, the thanks of the Association were tendered to the Secretary for his efficient services.

On motion of Prof. Larrabee, the thanks of the Association were tendered to Jefferson Medical College for the use of the hall and other courtesies.

On motion, the Association adjourned, to meet at the call of the President.

J. B. Biddle, M.D., *President.*

Leartus Connor, M.D., *Secretary.*

INTERNATIONAL MEDICAL CONGRESS.

The International Medical Congress will be formally opened at noon on Monday, the 4th day of September.

The sessions of the Congress and of its Sections will be held in the University of Pennsylvania, Locust and Thirty-fourth streets.

The general meetings will be held daily, from ten to one o'clock. The Sections will meet at two o'clock.

Luncheon for members of the Congress will be served daily in the University building from one to two o'clock.

On Wednesday evening, September 6, Dr. J. J. Woodward, U.S.A., will address the Congress on the "Scientific Work of the Surgeon-General's Bureau."

The public dinner of the Congress will be given on Thursday evening, September 7, at seven o'clock.

The registration book will be open daily from Thursday, August 31, to Saturday, September 2, inclusive, from twelve to three P.M., in the hall of the College of Physicians, northeast corner of Thirteenth and Locust streets, and at the University of Pennsylvania on Monday, September 4, from nine to twelve P.M., and daily thereafter from nine to ten A.M. Credentials must in every case be presented.

Letters addressed to the members of the Congress, to the care of the College of Physicians, northeast corner Locust and Thirteenth streets, Philadelphia, during the week of meeting, will be delivered at the University of Pennsylvania.

The secretaries of State and Territorial medical societies are requested to forward without delay to the Chairman of the Committee on Credentials, I. Minis Hays, M.D., 1607 Locust street, Philadelphia, lists of their duly accredited delegates to the Congress.

Delegates and visitors intending to attend the Congress are earnestly requested individually to notify immediately the same committee.

This information is desired to facilitate registration, and to insure proper accommodation for the Congress.

Members intending to participate in the public (subscription) dinner of the Congress will please notify the Secretary of the Committee on Entertainment, J. Ewing Mears, M.D., 1429 Walnut street, Philadelphia.

Gentlemen intending to make communications upon scientific subjects, or to participate in any of the debates, will please notify the Commission before the 15th of August.

NOTICE.

At an informal meeting of the undersigned, held in Philadelphia, at the rooms of the Section of Practical Medicine, of the American Medical Association, Wednesday, June 7, 1876, after the election of a Chairman and Secretary *pro tem.*, it was resolved to call upon such American physicians as had evinced a special interest in dermatology to unite in forming an American Dermatological Association.

Resolved, That the meeting for organization be held in the University of Pennsylvania, Philadelphia, on Wednesday, September 6, 1876, at six P.M., or immediately after the close of the meeting of the Section of Dermatology and Syphilology of the International Medical Congress on that day.

It is sincerely desired that you will be present and aid in the organization. Please signify your pleasure at the earliest opportunity, and oblige Very truly yours,

L. D. Bulkley, *Secretary pro tem.*, 1 East Thirty-third Street, N. Y.
Edward Wigglesworth, Jr., *Chairman*, Boston, Mass.
Louis A. Duhring, Philadelphia, Pa.
Lunsford P. Yandell, Jr., Louisville, Ky.
George Henry Fox, New York.
J. E. Atkinson, Baltimore, Maryland.

BOOK NOTICES.

Lectures on Orthopedic Surgery and Diseases of the Joints. Deliverd at Bellevue Hospital Medical College during the Winter Session, 1874–75, by LEWIS A. SAYRE, M.D. Illustrated by 274 Wood Engravings. New York: D. Appleton & Co. 1876. pp. 476.

This work, by the foremost American authority on the subject, is destined to take a high place in our standard medical literature. The form of clinical lectures, while it militates against that careful and systematic consideration of subjects usually looked for in a text-book, is more than compensated for by vigor and directness of style, in which respect Dr. Sayre is to be highly complimented.

The author's position, as a pioneer and innovator, has made him somewhat dogmatic and controversial at times, but never offensively so; and where we are not prepared at once to agree with him, he commands our attention, and sets us thinking. We have no space for any thing like a review of so important a work, but can only say in conclusion, that every practitioner should hasten to procure and read the book for himself.

The Student's Guide to Dental Anatomy and Surgery. By HENRY SEWILL, M.R.C.S., etc. Philadelphia: Lindsay & Blakiston. 1876. pp. 203.

This is an excellent little manual on its subject. Not only dentists, but physicians as well, may find in its pages a ready reference for much that it is desirable for them to know and bear in mind. The portions on the histology and development of the teeth are specially worthy of commendation.

Third Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year ending September 30, 1875. Lansing: State Printers. 1876. pp. 170.

Such an excellent volume as this is the best argument that could be offered for the universal establishment of State Boards of Health. The State of Michigan is much to be congratulated on the high character of the gentlemen composing its sanitary board, and of the work they put forth. No one can even glance over the pages of this Report without pleasure and profit.

OHIO
MEDICAL AND SURGICAL JOURNAL.

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ORIGINAL COMMUNICATIONS.

ART. I.—*Syphilitic Iritis.* By T. R. POOLEY, M. D., of New York, Assistant Surgeon to New York Ophthalmic and Aural Institute, Ophthalmic Surgeon to Charity Hospital, etc. A paper read before the New York Medical Library and Journal Association.

Iritis is the most frequent of all the syphilitic affections of the eye. Graefe, from statistics collected and reported in his lectures, deduces that about sixty per cent. of all cases of iritis occur in persons affected by syphilis. In looking over the clinical register of the New York Ophthalmic and Aural Institute, some time ago, I found fifty cases of this form of iritis in six thousand eye patients. I have made an analysis of these cases, with a view of ascertaining some facts about its relation to syphilitic infection, clinical history, and so on, and in the course of this paper shall make frequent reference to them.

But first let us say a few words of iritis in general. In the older works on ophthalmology the inflammations of the iris were classified according to the dyscrasiæ, upon which they were supposed to depend, thus giving rise to a formidable array of different forms of iritis.

If, however, we adopt an arrangement based on pathological anatomy, we shall greatly simplify the classification, and may include all varieties under the following four groups:

1. Simple idopathic iritis.
2. Serous iritis (also known as Descemetitis, punctate Keratitis, etc.).

3. Parenchymatous iritis.
4. Syphilitic iritis.

As there are various symptoms which more or less characterize all forms of iritis, we shall find it convenient to first describe them, and then turn our attention more particularly to those belonging to the syphilitic form. The first symptom of iritis is hyperæmia. This always precedes, and, under appropriate treatment, may stop short of actual inflammation. Indeed, hyperæmia of the iris is far more common than is usually supposed. The symptoms are, more or less marked, sub-conjunctival injection, contraction and sluggishness of the pupil, and change in color of the iris, due to the increased vascularity imparting a reddish tint to its natural color. If, however, added to these symptoms we have effusion of lymph at the pupillary margin or into the substance of the iris, we have a veritable inflammation. Among the earlier symptoms of iritis are, injection, more or less marked, of the sub-conjunctival vessels, supra-orbital neuralgia, contraction and sluggishness of the pupil, and a discolored, lack-lustre appearance of the iris.

There is usually some injection of the palpebral and ocular conjunctiva. Sometimes the swelling of the conjunctiva is so great as to mask the sub-conjunctival vessels, and thus prevent us from seeing the characteristic zone of injection. This is particularly apt to be the case if warm applications or poultices have been injudiciously applied to the eye. Subconjuctival vascularity, also called circum-corneal and episcleral injection, is known by a more or less broad zone of parallel vessels at the margin of the cornea, which is of a rose or pink color, and consists mainly of arterial twigs. The color may, however, vary, and sometimes assumes a blue or brownish tint, which was formerly erroneously supposed to be symptomatic of syphilitic iritis.

There may be more or less chemosis, which is occasionally so great as to raise the conjunctiva round the cornea like a mound. Sometimes the eyelids are red and puffy, but these latter symptoms belong especially to suppurative iritis. Pain, although most always present, varies very much in intensity. At first there may be only a sensation of itching or burning in the eye, but soon the pain becomes more severe, and assumes a cutting, lancinating character. It may be chiefly confined to the eye itself, or extend to the forehead, temple, and down the side of the nose. This kind of pain is called ciliary neuralgia. Sometimes the pain is referred to the distribution of the ophthalmic division of the fifth nerve and its branches, extending over the corresponding side of the head even as far as the occiput. The pain is commonly increased in severity at night, and abates towards morning.

Although pain is so constant, the eyeball is not sensitive to pressure in uncomplicated iritis; and if the ball be painful to the touch, we can be almost certain that the ciliary body is implicated in the inflammatory process. The severity of the pain occasionally gives rise to constitutional disturbances, and the exacerbations are accompanied by feverishness, impairment of appetite, loaded tongue, or even vomiting.

Photophobia and lachrymation, although existing to some extent, are seldom so prominent or severe as in certain forms of inflammations of the cornea. We come, now, to enumerate the symptoms presented by the iris itself, among the earliest of which are contraction of the pupil, and change in color of the iris. This discoloration, as already remarked, is due to vascularity of the iris, or to exudation into its stroma. In order to estimate this rightly, we should always compare it with the other eye, if this be normal, otherwise an error may easily occur. It is also necessary to distinguish a difference in shade of the iris, due to turbidity in the cornea, or aqueous, from a change in color of the iris itself.

Besides its discoloration, the iris presents a peculiar, dull, lack-lustre appearance—its fibrilliæ, or striæ, to have lost their sharply-defined character, and are blurred and indistinct. This depends, in a great measure, upon hypertrophy of the connective-tissue elements of the iris, and, in part, upon exudation upon its surface and into its stroma. The pupil is sluggish, and more or less contracted, except in cases where there is a tendency to increase of intra-ocular pressure. This is the result, in part, of the unusual amount of blood in the iris, and of its being rendered thick by effusion of serum or plastic material into its stroma, thus impeding the action of the circular fibres of the iris.

In testing the mobility of the pupil, the patient should be placed so that a strong light falls obliquely upon the eye; the other eye should be carefully covered by a handkerchief. The affected eye should then be shaded by the hand, which is rapidly removed, so as to admit the light, and the action of the pupil carefully noted. It is to be borne in mind that contraction and immobility of the pupil may exist without iritis being present, as in Keratitis, and when a foreign body is lodged in the cornea; in these cases it depends upon irritation of the ciliary nerves. The pupil soon loses its circular contour, and we see small beads or tags of exudation, which tie down the pupillary margin to the anterior capsule of the lens. These points of adhesion are at first so small as to be overlooked, unless careful examination by oblique illumination is made, or atropine is dropped into the eye. As the exudation increases in quantity, the whole pupillary margin of the iris is fringed by them, or they coalesce, uniting the whole edge of the pupil firmly to the lens capsule, leaving the center of the pupil clear enough to admit of good vision. This condition is variously termed *circular* or *annular* synechia, and *exclusion* of the pupil. We must distinguish between this condition and that in which the exudation invades the area of the pupil, until the whole of it is occluded by a nodule of lymph, the sight, of course, being correspondingly impaired, which is called occlusion of the pupil.

But the exudation may not be confined alone to the pupillary margin; in severe cases it extends along the posterior surface of the iris as far as the ciliary margin, producing broad and very firm adhesions.

The synechiæ vary greatly in thickness, extent, and number, and become very apparent when atropine is used, by the irregular manner in which the pupil dilates. The surface of the iris may be covered by a film of exudation, or lymph may be mingled with the aqueous humor, giving it a turbid appearance. Again, it may be precipitated against the posterior wall of the cornea, where it appears as small dots of opacity, usually in the inferior part of the membrane (serous iritis); or, again, it may sink to the bottom of the anterior chamber, forming an hypopyon. The amount of hypopyon is sometimes so small as to sink to the bottom of the chamber and escape notice, or it may attain such a size as to almost fill the anterior chamber. In simply iritis the cornea remains clear, or shows only a faint cloudiness, but in the serous form punctate dots appear on the inner layer of the cornea. The cornea may, however, become implicated in the inflammatory process. Vision is often considerably impaired. This is partially due to the impairment of the transparency of the aqueous, to the diminution of the size of the pupil, and occlusion of the pupil. If, however, there be much impairment of sight, without exudation into the pupil, we have reason to expect that the inflammation has traveled backwards to the ciliary body or choroid, giving rise to diffuse opacity of the vitreous humor. It is, therefore, a wise precaution to test and record the acuteness of vision when we first see the case, that we may at once detect any deterioration and ascertain to what cause it is due. The tension of the globe in an ordinary iritis is normal, but in serous iritis it is sometimes increased. Although the smallness of the pupil and synechiæ may cause some limitation of the field of vision, the contraction peculiar to glaucoma is wanting, except in some cases of serous iritis.

Having now considered, somewhat in detail, the symptoms common to iritis in general, let us pass on to the consideration of that form with which we have especially to deal. But before entering upon our subject proper—iritis due to acquired syphilis—it will be well to occupy a little space by a consideration of acute iritis, due to hereditary syphilis, in infants or young children.

This affection was first treated of, in connection with its true cause, by Mr. W. Lawrence (*), and, before the work of Hutchinson on syphilitic affections of the eye appeared, was the only form of inflammation of the eye which had been described with any degree of precision as due to inherited syphilis. Since Mr. Lawrence's publication, cases have been put on record by Maunsell and Evanson (†), Dr. Jacobs (‡), Mr. Walker (§), and Mr. Dixon in his book on diseases of the eye. The latter author has given an excellent account of its peculiar features.

But by far the most careful study of the subject has been given us by Jonathan Hutchinson (||), and I shall take the liberty of copying freely from his book.

This author collects all the cases on record at the time of his publication—six in number—and adds sixteen others afforded by his own experience. In his summary of these cases the following facts are given, an abstract of which will give the best idea of the peculiar features of the disease:

1. *Age.*—The average age of the patients at the time of

(*) A Treatise on the Venereal Diseases of the Eye. London, 1830.

(†) Practical Treatise on the Management of Children, 1847, p. 534.

(‡) Treatise on Inflammations of the Eyeball, 1849, p. 97.

(§) Provincial Medical and Surgical Journal, 1845, p. 293.

(||) A Clinical Memoir on Certain Diseases of the Eye and Ear, consequent on Inherited Syphilis. London, 1863.

the attack was five months and a half. The oldest was sixteen months at the time of the outbreak, the youngest six weeks.

2. *Sex.*—Five of the infants were males, and sixteen females. The sex of the remaining two is not specified.

3. *Eye Attacked.*—In about one-half the cases it affected both eyes.

4. *Phenomena of the Attack.*—The pink zone of injection was only well marked in two cases; in ten other cases it was present, but not well marked. In two cases no note on this point is recorded, and in one it is expressly stated that during the acute stage of the iritis there was no increase in vascularity of the tunics. Effusion of lymph into the pupil was copious in fifteen cases, occluding the pupils; in four cases it was moderate; in three the iris was merely tumid and discolored, while in one no note as to its state is recorded. In one case the cornea was "hazy;" in one ulcerated, without haziness; and in one lymph effused into the anterior chamber became attached to its inferior surface. In all the others (fifteen eyes) the cornea remained clear throughout the attack.

5. *Result to the Organ.*—In seven cases (ten eyes) the cure was complete, every trace of lymph having been removed; in two or three other cases it was complete, except that two or three slender adhesions remained. In three cases (four eyes) the result is not known. In twelve cases one pupil was permanently occluded by organized false membrane.

6. *Other Symptoms of Syphilis present at the time of the Iritis.*—In several cases the account of coexistent symptoms is either wanting or very incomplete. The syphilitic cachexia was present in twelve cases, and its absence noted in five. Psoriasis of the general surface was present in ten instances, a papulæ rash in two, psoriasis palmaris in one, erythema marginatum in two, and "peeling of the skin" in one. In one mucous ophthalmia attended the iritis, in one the eye-

lashes had fallen out, and in one the lids were affected by tinea tarsi. "Snuffles" in the nose existed in eleven cases, in four there were apthous or other sores in the mouth, in five soft condylomata around the arms were present, and vaginal discharge in one. In two cases the history gave conclusive evidence, but there were no specific symptoms at the time of the outbreak of iritis.

7. *Length of period which had elapsed between the date of the primary disease in the communicating parent and the birth of the infected child.* The data on this point is very incomplete. In one instance the mother had had primary syphilis only three months before the infant's birth, and in another the period was four, and in a third, six months. In five cases it seemed probable that a period somewhat less than a year had elapsed, whilst in five it had been at least two years. In two, judging by the fact that the mother had borne a number of children, some of whom had showed suspicious symptoms, the date of the original infection in the father could not be placed nearer than six or seven years. Of the twelve cases in which alone a history of the family is recorded, *we find that the affected infant was the only living child of its parents in thirteen instances.* In four it was the result of its mother's first conception; in four miscarriages only had preceded its birth; and in four other cases conceptions had terminated either in abortions or in the birth of children who had died of syphilis.

8. *Infrequency of this kind of Syphilis.* It is the rarest of the symptoms of hereditary syphilis. It often escapes notice. The absence of the sclerotic zone of injection, with the very small amount of local symptoms, together with the fact that young infants usually keep their eyes shut, will account for this. In confirmation of Mr. Hutchinson's statement that this form of disease is very rare, I may say that in eight years of infirmary practice I have only seen one case of the kind. This was in a young infant, which was a patient of

one of my colleagues. This child had an acute inflammation of the iris and condyloma, but it was difficult to exclude the possibility of acquired taint, and there were no other symptoms of syphilis present. Hutchinson says that during seven years connection with the Metropolitan Free Hospital in London, he has never treated a case in connection with that institution, although numbers of cases of congenital syphilis present themselves, and he has carefully examined the eyes of all.

We now come to the consideration of the peculiarities of iritis, occurring in acquired syphilis.

This form of iritis is nearly always of the plastic or parenchymatous type, occurring usually among the earlier secondary symptoms; in some cases there is a coexistent syphilide. It is also, in a certain percentage of cases, distinguished by the occurrence of peculiar tuberculous nodules, gummy tumors of Virchow, called also by Beer condyloma. These gummy tumors appear very frequently in syphilitic iritis. In the fifty cases analyzed by me, their occurrence is noted in nine cases, and Schmidt records their existence seven times in thirty-four cases. They may occupy any part of the iris, but are most commonly situated on its pupillary margin, although they may also appear on the ciliary border or on a point between the two. This form of iritis was known to McKenzie, Lawrence, and others of the older authors, who attributed the appearance of these nodules to the lymph assuming a tubercular form in or on the substance of the iris. They are now known to be identical in structure with gummy tumors, as described by Virchow. The latter author first entertained this view, but was unable to pronounce a positive opinion, because he was unable to verify it by examination.

Colbert, however, had the opportunity of examining one of these growths, which was removed by iridectomy by Alfred

Graefe.* He found the tumor to be composed of small cells and occasionally one or more nucleoli. Besides these imperfectly developed cells, he also found fusiform cells arranged in a linear series, which were, without doubt, the beginning of new vessels in the way of formation. The examination showed neither muscular fibres nor transparent pigment cells, these proper elements of the original tissue having been entirely replaced by new elements. The general appearance of these growths serve to distinguish them from merely plastic exudations, and points to the conclusion that they are a cellular and not a plastic formation. This view is still further supported by the manner in which they disappear under treatment; they contract irregularly, and seem to retire within the tissue of the iris in quite a different way to which lymph behaves while undergoing absorption. They appear at first deeply imbedded in the parenchyma of the iris, orignating in the deeper portion of its connective tissue, and may attain a very considerable size, their apex even touching the posterior wall of the cornea. On account of the presence of pigment cells and vessels, the nodules often assume a dark reddish-brown color. Sometimes they undergo a fatty or purulent degeneration, breaking down into a yellow grumous mass, which becomes mixed with the aqueous humor, and gravitates to the bottom of the anterior chamber. They, however, more often contract and undergo more or less rapid absorption, and always at the expense of the iris tissue which becomes atrophic. They may be scattered about over the iris, but it is much more common to see them confined to one portion of it, and, although the circum-corneal zone of injection is well marked, the intensity of the injection is the most pronounced in that portion of the iris upon which the tumor is situated; the corresponding portion of the iris is the most thickened and swollen, and is attached to the lens capsule. If not properly treated, they may extend so as to involve the ciliary body and choroid; and a case is reported by Von Hippel* in which the gummy tumor involved all the coats of the eyes.

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* Archiv. für Ophthalmologie, vii., 1.

It should be remarked that displacement of the pupil is caused by these growths, and this condition was formerly considered characteristic of syphilitic inflammation. We must also remember to distinguish these tumors from swellings, the result of lymphoid exudation into the parenchyma and upon the surface of the iris.

Besides these gummy tumors, a peculiar form of exudation has been recently described as sometimes occurring in syphilitic iritis. This form of exudation was first described by Prof. Schmidt, of Marburg,† as occurring in cases of severe iritis, as a copious mass, resembling a cataractous lens, dislocated into the anterior chamber. Following him, Gunning reports three cases, in which lens-like exudations were noticed by him.‡ The last authority says the exudation is poured out suddenly, and disappears in a few days without leaving any traces of its presence behind, and gives to it the name of gelatinous exudation. But neither of these authors refer to it as occurring with syphilitic iritis. Dr. Gruening, of this city, however, has observed a case in which this form of exudation occurred simultaneously with a gummy nodule of the iris,§ and Dr. Kipp, of Newark, N. J., reports a similar case.‖ This form of exudation was first pointed out to me by Prof. Knapp, as occurring after operations upon the iris, and he gave to it the name of spongy. It comes abruptly, and soon more or less fills the anterior chamber. It is made up of fine filaments, crossing each other at different angles, and forming a net-work which closely resembles the gross structural arrangement of sponge. Absorption takes place rapidly without alteration in appearance, or the exudation may first be transformed into a bluish white homogeneous and sharply-defined mass. Gruening makes the observation that the gelatinous exudation of Gunning is, in reality, a transition stage of the spongy exudation of Knapp.

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* Archiv. für Ophthalmologie xiii., 1, p. 65.

† Klinische Monatsblätter für Augenheilkunde, p 94, 1871.

‡ Klinische Monatsblätter für Augenheilkunde, p. 7, 1872.

§ Archives of Ophthalmology and Otology, Vol. iii., No. 1, p. 20.

‖ Loc. cit. p. 73.

This form of exudation can not be considered as peculiar to syphilis, since it occurs in both idopathic and traumatic inflammations of the iris, and I have seen it most frequently after operations. Dr. C. S. Bull has observed that iritis due to syphilis assumes a particularly unfavorable course when it occurs in negroes.* He says the iritis usually appears simultaneously with some eruption on the skin, generally of a papular form, is of a plastic type, posterior synechia is a constant accompaniment, and the cornea usually becomes diffusely opaque at an early date. The inflammatory process extends to the choroid, and the vitreous becomes diffusely opaque; in short, there is irido-choroiditis. The process in the iris now becomes a suppurative one, and the eye is lost by the purulent process extending to the choroid. In one case the eye was lost under glaucomatous symptoms, which terminated in total amaurosis in spite of iridectomy. In only one out of six cases observed by Bull did the process fail to destroy the eye, and in this case vision was reduced to counting fingers close to the face.

Complications.—Syphilitic iritis is far more frequently complicated by inflammations of the other tunics of the eye than the other varieties of iritis. The cornea, ciliary body, choroid, retina, optic nerve, and the vitreous humor may become involved. Hence it is of importance to submit the patient to ophthalmoscopic examination, that these deeper lesions may not be overlooked. Space will not allow us to enter into a detailed description of the characteristics of these diseases, we can only speak of their comparative frequency.

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* Brown-Séquard's Archives of Scientific and Practical Medicine, No. 3, March, 1873, p. 249.

Schmidt observed, in his thirty-four cases, Descemetitis, or deposits, in Desecemet's membrane, four times, in four circumscribed infiltration of the cornea; in seventeen, opacities of the vitreous; in six, retinitis. In two cases the gummata starting from the iris involved the ciliary body, and came forward through the sclera, beneath the conjunctiva. In two cases a chronic cyclitis, with diminished tension of the eye-ball, followed the iritis. My notes in regard to this particular are very deficient, for in most of them no note on this point was recorded. The complications which were recorded are diffuse infiltration of cornea, serous iritis, neuro-retinitis, cyclitis, choroiditis disseminata, and retinitis, but the record in regard to their comparative frequency is of no value, owing to the absence of histories of the cases.

Bull (l. c.) says that he has often noticed retinitis as a complication of syphilitic iritis, with limitation of the field of vision corresponding to the affected portion of the retina.

Period of Syphilitic Infection in which Iritis occurs.—There seems to be a conflict of opinion among authors upon this point. Bumstead says that "no precise rule can be laid down; still the form which is most common, and most deserves attention, is to be ranked among the secondary symptoms."* Without being able to furnish any statistics as to which the exact date of its development occurs, he has often been struck with the fact that when no mercury has been taken iritis occurs in from four to six months after contagion. Wecker, on the contrary, observes that the specific form of irits occurs oftener when the disease has been a long time in developing itself than when it runs a rapid course.† Coulson,‡ from the result of a long period of observation in the Lock

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* Bumstead on Venereal Diseases. New York, 1873.

† Maladies Des Yeux. Paris, 1867.

‡ Treatise on Syphilis. London, 1869.

Hospital, claims iritis as belonging to the earlier secondary manifestations of the disease, and occurring up to the sixth month after infection. In many cases, however, iritis sets in much earlier, between the second and third months. Stellwag, again, says that iritis occurs after syphilis has existed for some time, and has been variously localized.* These few quotations show the variance of opinion which exists among different authors. My own observations on this subject are decidedly in favor of the statement that iritis belongs, as a rule, to the earlier stages of secondary syphilis. I have usually found it to appear within six months after contagion, and frequently as soon as the second or third month; and in one case of my own there was indisputable evidence that it occurred in one month after the contraction of the disease. In many cases irits is the first general symptom which has induced the patient to seek medical advice, but a careful examination will generally develop the fact that some other symptoms of syphilis, such as alopecia, engorgement of the cervical ganglia, mucous patches, erythema, or papules had preceded it. However, iritis does sometimes occur in the later stages of syphilis, and when so, it differs from that attending the earlier stage by it insidious and chronic form. It does not appear that iritis is associated with any particular form of eruption. In Schmidt's cases, to which we have so frequently referred, it is noted that in twenty-four instances the iritis was associated with some syphilitic affection of the skin or mucous membrane. The coincidental appearance of iritis with a papular eruption is so common that some authors have been inclined to assume a causal relation; this is, however, more rationally explained by the fact that this is one of the most frequent of the evidences of the existence of the constitutional disease. In my own observations on this point it is noted that in fifteen cases there were secondary manifestations present, such as roseola, papular eruptions, and sore throat. McKenzie says that the local secondary symptoms which he has the most often found associated with iritis have been pustular, papular, and scaly eruptions on the face and over the body, and next to this sore throat.*

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* Stellwag on the Diseases of the Eye. Amer. Translation. 1873.

Syphilitic iritis occurs more frequently in males than in females. In the fifty cases which I have examined, thirty-six were males and only fourteen females. This accords with the statement of other observers, and is, I suppose, to be explained by the fact that males are more exposed to syphilitic infection than females, and that a single prostitute may infect a large number of her unfortunate customers.

This form of iritis usually affects both eyes, although at different intervals. Schmidt found that in only one case were both eyes affected at the same time; in thirteen cases both eyes were affected, but at different times.

My own notes as to the frequency in which the eyes were involved is as follows: In seventeen cases the right eye; in fifteen the left; in three both simultaneously; in five both, but at different periods; and in ten cases the eye affected was not recorded. It would appear from these statistics that there is very little disparity in the eye affected, although some authors maintain that the left is the one most commonly attacked by iritis.

If we now inquire whether we can diagnosticate iritis depending upon syphilis from other varieties of iritis, I think we can answer in the affirmative for the majority of cases which come under our observation. The characteristics of syphilitic iritis, so far as the appearance of the eye is concerned, we have found to be—1. The tendency of the injection to assume a partial character. 2. The occurrence of gumata. 3. The coincidence of some other syphilitic manifestation, such as a syphilide, sore throat, adenitis, or the cicatrix of a chancre.

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* Diseases of the Eye. London, 1866.

It must be admitted, however, no one of these symptoms alone (if we except the gummy tumors) can be taken as proof positive of the syphilitic origin of the disease when there is an absence of other secondary symptoms. Even when iritis occurs soon after the healing of a primary sore, we can not be certain of its specific origin, but the presumption is so strongly in support of it that we ought to employ mercurial treatment. While admitting, then, that in the majority of cases some other evidence of syphilis is necessary to complete the diagnosis, its presence is to be strongly suspected in all cases of parenchymatous iritis, and more especially where the injection is more strongly marked in one quadrant of the iris.

This is a symptom which, we think, is of much value, and in the cases we have examined it is frequently noted that the injection was more pronounced in some one direction, and most often downward and inward. When gumma are present, there can be no doubt of the syphilitic origin of the inflammation. The very exceptional cases in which they have been recorded as existing without any other evidences of syphilis, are only the exceptions which make the rule. Every one who has tried it knows how difficult it is to obtain the truth from patients in regard to this particular, and it may very well have been that there existed a syphilitic infection in these very cases, although no evidences were present at the time and the patient denied it.

The prognosis in acute cases, and even where gummy tumors are present, is very good, if the patient be brought under the effect of mercury as soon as possible, and if the disease be seen at an early stage while the synechiæ are yet so brittle as to be easily torn by the action of atropine. It becomes more grave if the disease has progressed to the formation of broad adhesions which resist the action of atropine.

It should be borne in mind that syphilitic iritis is usually of a parenchymatous type, and accompanied by considerable exudation of lymph, not only at the edge of the pupil, but also into the structure of the iris, which fact renders the prognosis graver than in simple idopathic iritis where there is less exudation. Then, too, the tendency to the implication of other tunics must not be forgotten. The prognosis for the future of the eye is always rendered more or less grave when synechiæ are left, for their presence predisposes to attacks of recurrent iritis and glaucoma. While, as a rule, the percentage of recoveries in syphilitic iritis is large, under appropriate treatment, the inflammation leaves sequelæ, which renders the function of the eye more or less doubtful. Exclusion and occlusion of the pupil always have a bad effect upon the nutrition of the eye, and if the communication between the two chambers be not restored by the performance of iridectomy, is very apt to result in phthisis of the globe and loss of sight.

Newly formed products of inflammation (gumma) are, it must be remembered, more liable to impair the functions of the iris than simple exudation, and hence their presence adds to the gravity of the prognosis.

We now come to speak of treatment. The first point to be secured in the treatment of iritis is perfect rest for the eye, and this can only be secured by keeping the patient in a darkened room. The best results are always obtained and the duration of the disease shortened by keeping the patient confined to bed until the severity of the attack is over. It is of great importance in this as in every form of iritis to keep the pupil widely dilated. This should be accomplished as soon as possible, and maintained throughout the entire treatment of the attack. To accomplish this a strong solution of atropine will be required. In the normal condition of the iris a very weak solution will suffice to dilate the pupil, but in iritis it is very different, on account of the inflamed and swollen condition of the tissues and the exudation into its structure, which offer great resistance to the action of the drug.

The action of atropine is useful in three ways. 1. Wide dilation of the pupil is produced, and the iris removed from the lens capsule, thus preventing adhesions from forming. 2. More perfect rest will be afforded to the inflamed muscular tissue, for if the constrictor muscle of the pupil is not paralyzed, its constant action in regulating the amount of light admitted to the eye must of necessity increase the inflammation, just as would be the case in any other inflamed muscle which could not be kept at rest. 3. Atropine is supposed to diminish intra-ocular tension, and, therefore, to be useful in diminishing the state of congestion of the iris and ciliary body.

It is still a point under dispute whether atropine does really diminish or increase intra-ocular tension, but be this as it may, the irritation of the eye and the ciliary neuralgia are relieved in the most decided manner by its use. A solution of four grains to the ounce is the strength usually employed, and the frequency with which it is instilled must depend upon the condition of the iris. If the synechiæ are firm and numerous, or if the pupil be much contracted, or dilates but slowly, a drop may be put in the eye as often as every hour or two hours. Solberg Wells is in the habit of employing a solution of from four to six grains, and of applying it at five minutes intervals for half an hour at a time, this process being repeated, if necessary, three or four times a day. He thinks that under these directions the patient employs the atropine with much greater regularity than when directed, in general terms, to use it every hour or half hour.

This method of employing atropine, however, is open to the objection that it is very apt to be followed by poisoning, from the passage of the drug through the lachrynal puncta to the throat, although Wells says that he has never seen it occur in his practice. In some cases which I am obliged to treat as out-patients, I always drop in the atropine myself, at short intervals, until some effect has been produced on the pupil or the result is negative.

The energetic use of atropine can not be too strongly insisted upon in syphilitic iritis. It is, unfortunately, too much neglected by general practitioners, or only inefficiently employed, as the evil results of many cases of recurrent iritis and iride-choroiditis which present themselves at our public institutions testify. How long should atropine be continued? When dilatation is once obtained, it should be maintained until the circum-corneal zone of injection is gone, but of course it will not be necessary to use it so often after dilatation is accomplished. It has been held by some authors that by maintaining dilatation of the pupil for so long a time permanent mydriasis may result from paralysis of the sphincter-pupillæ; but if this be true at all, it must be very rare, for although in the habit of employing atropine every day, I have never once seen such a result ensue. It occasionally happens that the long-continued use of atropine induces a certain amount of conjunctival irritation, such as vascularity of the lower lids, accompanied with considerable swelling and great irritation or acute granulation. In such cases it must be stopped for a time, or some mild astringent combined with it; but some patients will have such an idiosyncrasy against its use that we shall have to try some other mydriatic.

To guard against the possibility of poisoning when strong solutions of atropine are made use of, pressure should be made over the lachrynal sac for a few moments after each instillation. Von Graefe recommends the patient to close the eye directly after the application, and subsequently, on opening the eye, to wash it well. He also, sometimes, employed a subcutaneous injection of morphine at night. The symptoms of atropine poisoning are too well known to render it necessary to say any thing about them here. The best and most rapid antidote is morphine by subcutaneous injection, one-fifth or one-fourth of a grain, to be repeated if necessary. Calabar bean has been recommended to be used in connection with atropine in tearing synechiæ, but is of very doubtful utility.

The abstraction of blood by the application of leeches to the temple is a most valuable adjunct in allaying the pain and facilitating the action of atropine. From four to six leeches should be put on the temple, care being observed not to place them too near the eye. They should be allowed to remain until they drop off of themselves, and then the bleeding may be encouraged by warm applications. It is not unusual to observe that in some cases which have resisted the action of atropine after the application of leeches dilatation of the pupil will at once ensue. This is explained by the relief afforded to the inflammatory irritation and intra-ocular pressure, allowing free absorption through the cornea, and hence the effect of atropine will now be marked and rapid.

It is the more common practice to use atropine first alone, and if it does not act promptly to order leeches, but I always order them at once in all cases of acute iritis; for I know of no remedy more effectual in relieving the pain, and I repeat their application whenever the pain returns. In the majority of cases, if not always, the patient should be brought under the influence of mercury as speedily as possible. I know that there is a variance of opinion among authors on this point, and you will find it stated that even syphilitic iritis may be treated by atropine and opium alone. In a book which I reviewed some time since, I found it stated that, "as a general rule, it may be affirmed that mercury is never to be employed in the treatment of iritis, except in cases arising from syphilis; in other cases this drug is useless, and often positively injurious." In my opinion, this is very bad advice, and I would say that in all cases of plastic iritis, with effusion of lymph and synechiæ, whether syphilitic or not, mercury is a most useful agent, and, in the latter form, preëminently so. As to the manner of using the drug: You may give calomel, guarded by opium, blue mass, the biniodide or protiodide of mercury. But the method which I prefer to all others is the inunction treatment, as by it the digestive powers are not impaired, and the constitutional effects are more speedily and surely obtained. From half a drachm to a drachm of mercurial ointment is to be rubbed into the inside of the thighs and arms morning and evening, never carrying its use to the point of ptyalism, but stopping as soon as the gums are tender, then discontinuing its use for a time, and employing a gargle of chlorate of potassa. The soles of the feet are sometimes selected for the inunctions, and the patient wears a pair of socks the inner surface of which have been smeared with the ointment. Mr. Teale recommends the ointment to be smeared on a broad piece of flannel, which is to be worn round each arm of the patient, to which a small quanity of ointment is to be added every night. I prefer to rub the ointment thoroughly into the skin, as I think it is by this means the more readily absorbed. The inunction treatment should not be employed unless the patient can remain in bed. In very serious cases, especially where gumma are present, it may be advisable to give at the same time some form of mercury by the mouth, or to use hypodermic injections of the bichloride. The latter mode of treatment has been employed by us in the New York Ophthalmic and Aural Institute—from one to two injections of the bichloride of from one-sixteenth to one-eighth of a grain in the course of twenty-four hours.

This seems like heroic treatment, but in severe cases, where there is a constant tendency to fresh exudations and formation of broad synechiæ, we have no time to lose if we wish to preserve the function of the eye. To effect this we have no more reliable agent than mercury, and the quicker we can produce (even though it be at the expense of the general economy) absorption, the better will be the results obtained.

It will generally be well to follow the mercurial treatment by a course of iodide of potassium, and Zittmann's decoction will be found to be useful, and an agreeable way of administering it. The nocturnal pain and sleeplessness should be relieved by opium. A hypodermic injection of morphine at night, when the pain is severe, is the best method of using this drug. Wecker recommends the use of warm fomentations in gumma growths. He continues their use day and night, without intermission, for several days. Wells has also found this method of treatment efficacious. I have no experience with it, but it can only be used in exceptional cases, for the uninterrupted attention of a nurse is required both day and night to carry it out effectually.

Operative interference will be necessary in cases of recurrent iritis, which depend upon broad synechiæ, and in exclusion and occlusion of the pupil, when it will be necessary to perform iridectomy. This operation may also be required if there be glaucomatous complications. As a rule, however, operations should not be made in the acute stage of the disease; they are particularly indicated for the conditions which remain after the inflammation has subsided.

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ART. II.—*The Nature and Treatment of Delirium Tremens.* By STARLING LOVING, M.D., Professor of Theory and Practice of Medicine, Starling Medical College, Columbus, Ohio.

It is not my purpose to discuss, at any length, the nature of delirium tremens, but to consider some of the modes of treatment which have been practiced within what may be called modern medical historical periods.

Delirium tremens is a peculiar affection, characterized by active delirium, hallucinations, almost constant muscular action, which, from its irregularity, causes trembling, and insomnia.

In pathology and symptoms it differs from delirium ebriosum, with which it is sometimes confounded.

Delirium tremens is always a consequence of the excessive use of alcohol, but it does not generally follow a first or second debauch, being the result, in much the largest proportion of cases, of that condition known as chronic alcoholism. It is most commonly observed in persons over thirty years of age, but occurs in younger persons.

It is always associated with, or preceded by, derangement of the functions of the alimentary canal, which continues during the attack. This consists at first in anorexia, constipation, and afterwards nausea and vomiting. In occasional cases there is diarrhœa instead of constipation, but such cases are exceptional. When uncomplicated, it is not attended with fever or febrile symptoms; there is rarely slight fever at the outset. Accidental circumstances, injury, or acute disease, frequently develop an attack in subjects seemingly before not disposed.

The sexes are alike liable to the disease, but it is more common among men, because the habit of drinking alcohol to excess among them is more prevalent.

It is more likely to be caused by the abuse of distilled liquors than wine or malt liquors, and more liable to be caused by malt liquors than wine, but results from the excessive use of all forms of alcoholic drink, but from no other influence. A morbid condition resembling it sometimes results from the excessive use of opium and tobacco, and is seen in the course of certain nervous disorders; but this condition differs essentially from delirium tremens. Frequently the attack occurs when the habit of drinking is suddenly interrupted, and the want of the accustomed stimulus is thought by many to be the exciting cause, but it as often occurs when there has been no interruption, and while the subject is under the influence of alcohol. Shocks to the nervous system, mental disturbance, and the occurrence of other forms of disease, often precipitate an attack, not because they enforce abstinence, but seemingly from the fact that they increase derangement of the functions, including those of the nervous system.

It is found, almost uniformly, on inquiry, that the sufferer has not eaten nor slept regularly for days, and often weeks, previous to the attack, the alcohol taking the place of food, and the loss of sleep arising from a variety of causes, all connected with the habit of drinking.

The disease is most common in cold weather, but occurs in all seasons.

The Anglo-Saxons and the Irish Celts are races most subject to this disorder, because the most intemperate in the use of malt and distilled liquors. Persons of nervous temperament are more apt to suffer than those of other temperaments. One attack does not seem to predispose to another.

The pathology of delirium tremens is not definitely known; various theories, founded on various circumstances, have been advanced, but examination after death does not reveal uniform morbid changes. In many instances in which the person has died of the uncomplicated form of the disease, no special morbid change has been found.

Generally, there is over-fullnes of blood in the brain and its membranes, but this is often mere static fullness—venous rather than arterial congestion. If the patient has died after a prolonged attack, or if alcoholism in his case was of long standing, evidences of œdema and dropsical effusion are not unfrequently observed under the membranes and in the ventricles of the brain. Sometimes extravasations of blood are found in the cerebral substance, but this is due to the occurrence of apoplexy, and is not a part of the pathology of delirium tremens. When death occurs, it is, in the greater number of cases, due to complications or intercurrent disease, as apoplexy, just mentioned, pneumonia, or injury. Sometimes it is undoubtedly due to injudicious treatment. Congestion of the lungs, bronchitis, and pneumonia are the most common complications, occurring not as direct consequences of alcoholism, but they occur partly from the vitiated nutrition incident thereto, the irritation of the lungs from the constant presence of large quantities of alcohol in their structure, together with the exposure, the want of food and sleep, and sometimes the violence which precedes an attack.

Delirium tremens, developed in the persons of inebriates who have suffered from severe injuries, is more apt to be complicated with local congestions and inflammations, including erysipelas, than when it occurs under other circumstances, and the fatality is consequently greater in such cases.

Death sometimes results from paralysis of the heart, or pure asthenia, the heart not becoming truly paralyzed, but suddenly losing its power of contraction from weakness. Those cases in which death occurs suddenly on the supervention of the symptoms of congestion of the brain or of apoplexy are usually not cases of delirium tremens, but of delirium ebriosum.

Although we are not certain of the precise structural changes which constitute the intimate pathology of the disease, we know the cause to be the prolonged effects of alcohol upon the nutrition, its local effects upon the stomach and bowels, and through the circulation upon the remote tissues, especially upon the brain and its immediate dependencies. Whether the effect upon the structure of the nerve centres is the result merely of the presence of the irritant or chemical union with the nerve cells, it is impossible to decide by our present means of investigation.

The commonly accepted opinion is that first stated, namely, that the alcohol produces disordered action by its mere presence in the brain, exciting constant irritation, and interfering with the cell-changes in the structure of the organ. Some suppose that it unites with the albuminous portion of the tissue, forming chemical union, which soon renders normal function impossible. Perhaps one or the other of these opinions affords the clue to the nature of the disease, and it may be unnecessary for us to seek further, but there are reasons which give strength to the opinion that it may originate in reflected irritation. One of the strongest reasons is the fact that no case of the disease ever occurred without antecedent disorder of the digestive organs, continuing for a variable, but always a considerable length of time, and the first steps toward a cure consist, always, in endeavors to correct such disorder, which, when successful, usually puts an end to the case. Further, while post-mortem examinations do not reveal uniform morbid changes in the brain, they do show the stomach to be diseased in most instances.

The tendency of delirium tremens is toward recovery, the fatality, even under unfavorable circumstances, being very small; but complications or injudicious treatment often render it an exceedingly dangerous malady. Perhaps it is not exceeding bounds to assert, that in the majority of fatal cases the issue is due to the one or the other.

In uncomplicated cases the cure is sufficiently simple. It consists in attention to cleanliness and comfort; provision for the security of the patient, to prevent him from doing violence to himself or others; the regulation, as far as possible, of disordered functions, especially of the alimentary apparatus; giving of nutritious food, highly spiced, that the system may be sustained until the alcohol has been eliminated, and the injury to the tissues repaired.

This is a short summary, and might convey the idea that the management of the disease is a trifling matter, but all who have had any experience, and comprehend the exceeding difficulty experienced in almost all cases in carrying out any part of what has been proposed, know this is not true. Nevertheless, the summary embraces all that is necessary, and could we content ourselves, and convince the friends of the patient that nothing more *is* necessary, it is certain that the majority of our patients would recover without other treatment. More time would be consumed, the friends of the sufferer would be anxious and impatient before the termination of the case; perhaps the liability to accident is increased, but I am of the opinion, deliberately formed, that leaving the objections just stated out of the question, it is more honest and philosophical to trust to the measures suggested than to combine with them the use of large quantities of active and dangerous medicines.

In early times, like many other diseases, delirium tremens was thought to be the work of the Grand Adversary, and the unfortunate was subjected to exorcisms and anathemas, which had the negative merit of being not harmful if they did no good, and this mode of treatment may be remembered as one possessing at least the merit of safety, which is more than can be said of several modes of treatment which have since been practiced.

This theological method of treatment might be followed, in connection with the suggestions mentioned further back, without disadvantage; in fact, we follow the main precept in forbidding the alcohol, the chief element of the whole trouble, and the remaining formulæ might be useful, provided we had means to satisfy modern ideas of theology and medicine.

The more modern plan of using powerful cathartics, with emetics and venesection, while objectionable in many respects, is not without merit in the first stages of the malady, particularly in those cases wherein there is congestion of one or more of the important organs; but it is most valuable when there is inflammation and fever.

It is still more applicable in cases of delirium ebriosum.

In uncomplicated cases, except in the outset, before the full establishment of the disease, this mode of treatment has long been abandoned, for the reason that under it the mortality is so great as to condemn it. No practitioner, with the prevalent ideas of pathology and therapeutics, thinks of venesection in cases presenting the features of temperature, pulse, and general strength ordinarily observed. Exceptions are now and then met wherein accidental hemorrhage, or venesection, is followed by immediate amelioration of symptoms; the cases presenting the ordinary signs of the uncomplicated disease, which persist, in spite of treatment, and continue longer than usual, are cases in which local congestion or inflammation has escaped notice, and has been the cause of difficulty.

There can be no doubt of the efficacy of purgation in the formative stage. In many cases a cathartic, when the patient is suffering from the "horrors," followed by a single dose of an opiate, will prevent or cut short an attack. When the tongue is furred and the breath is fœtid—when, without the evidences of gastritis, there is persistent nausea—the combination of an emetic with the cathartic is clearly indicated, but the use of emetics, to be beneficial, must be confined to the premonitory stages.

When the first stage has passed and the patient is troubled "with thick coming fancies," this treatment is no longer applicable.

If, as is frequently the case, there is much debility, any purgative other than a mild laxative will obviously be harmful. The good effects of purgation seem to be completed by the after administration of an anodyne, and the common plan is to give immediately after the operation of one or both an opiate alone, or associated with camphor or a glass of one of the malt liquors. Equal benefit is sometimes derived from the administration of capsicum with the opiate; as often, perhaps, the capsicum does as much good when given alone in the form of powder or infusion.

Owing to the effect of capsicum on the stomach and the nervous system, it seems to exercise an influence over gastric and nervous affections of inebriates beyond what we should expect from its effects in other diseases. It is the popular and efficient remedy with many physicians, who attempt to cure the habit of drunkenness; and we are informed by those whose experience gives weight to their opinions that the infusion taken when the desire for drink arises with the inebriate, a drink of the infusion hot, will satisfy it almost as perfectly as alcohol. Capsicum, like many other remedies, displays its effects to best advantage in the premonitory stages of the disease; afterwards it does not exert much control except as a stimulant to the functions of the stomach.

For many years opium was, as it is still regarded by many of the profession, the chief and really the only important medicine in the treatment of delirium tremens, and until within a recent period the sole object of treatment was to give the drug in sufficient quantities to "force sleep." We are all familiar with this mode of treatment, know the enormous quantities required in many cases before the end is attained, if it be attained, and we appreciate the risk incurred in the administration of this medicine in the quantities necessary to accomplish the object. Perhaps all practitioners have watched patients under the influence of repeated doses, and have observed the effects of the drug as they appear one after the other—the contracted pupil, the venous tinge of the skin, the enfeebled movements, the increasing derangement of the mental faculties, the diminution of sensibility until profound narcosis results, the patient passing into a deep stupor from which he emerges rational and convalescent, but greatly prostrated, or the stupor, once established, growing more profound, until death closes the scene. But the administration of even large quantities does not in all cases bring sleep; dose after dose is administered, the characteristic effects of the medicine all become apparent, except that the patient does not sleep, nor does the delirum subside; the patient, though evidently more feeble, still struggles, his delirum is still present.

The practitioner feels that he is now on dangerous ground; he can not carry his remedy much farther without the certainty of at least placing life in jeopardy, if he does not destroy it, yet he dislikes to acknowledge that he has failed in his object, which he must do at the risk of incurring the doubts of the friends of the patient as to his skill.

We can account for the failure of opium to produce its ordinary effects in this disease on one of two hypotheses: we may say it does not produce its ordinary effects because of the morbid conditions of the system always present. In the first place, in delirum tremens, as in tetanus and other nervous diseases in which exaltation of function forms a distinctive feature, the susceptibility to its influence is very greatly diminished, not abolished as in tetanus, but greatly diminished. In the second place, owing to the condition of the digestive apparatus, the medicine is not absorbed so rapidly as under ordinary conditions; indeed, there is good reason to suppose that in many instances but little of any thing is absorbed from the stomach in this disease, at least during considerable periods.

With this in view, we generally prescribe larger doses in the beginning, and continue their use until we have gone as far as prudence will allow (often beyond its bounds), but it is unwise to presume too far, for in some cases neither of these conditions are present; the medicine is rapidly absorbed and the susceptibility is but little changed, and we are much surprised at the result of our heroic treatment. Such results may occur from the influence of the first dose, but they may not occur until after the administration of many doses. This comes from what seems to be the established fact that both sensibility and the function of absorption may, for a time, be suspended or greatly diminished and suddenly resumed.

These are, perhaps, the most important objections to the use of opium; there are others, minor in degree, but still important. We are usually obliged to trust the administration of our medicines to chance nurses, the relatives, and friends of the patient, who are mortified at his condition, anxious to see him quiet as soon as possible, or they are terrified and restless because the case does not terminate as speedily as they desire. On the one hand, they are apt, after finding that one, two, or more doses do not quiet the patient, to increase the quantity and shorten the intervals between them; on the other hand, they soon begin to doubt the skill of the medical attendant, and to question the propriety of his prescriptions. They are wavering and uncertain in carrying out directions, and the result is nugatory or startling. Knowing all this, the physician is uneasy, and obliged to weary himself with making frequent visits, and his mind is constantly troubled for fear of mishap, or that his treatment will utterly fail.

A further objection to the opium treatment, and the strongest, is the fact that the mortality is greater under it than under some other methods. Great care should be exercised in prescribing it. We should be precise as to quantity and the time which elapses between the doses. We should never, because of presumed insusceptibility of the nervous system and deficient power of absorption, be tempted to exceed greatly the ordinary dose, nor should we continue its administration after the evidences of its influence are plainly manifest. It is better that we administer medium doses, and repeat these at ordinary intervals, not permitting our anxiety to see the patient sleep to overbalance our sense of prudence. It is proper that the physician administer each dose; and that he may be reasonably sure that it is absorbed and takes effect, he should introduce it into the system by the use of the hypodermic syringe. There can be no mistake or doubt in such treatment, and we are sure to get the good effects of the medicine without the uncertainty and anxiety which are necessarily experienced when it is administered by the mouth.

Many, however, object to hypodermic medication, preferring the older mode of administration with all its uncertainties—and there is a question as to the form of exhibition.

From the minuteness of the dose and the ease with which it is administered, many prefer morphia—some the liquid preparations, while others are indifferent, so the patient takes opium. The liquid preparations containing alcohol are the most active, because most quickly absorbed; hence laudanum is a popular preparation. It is well to combine even this with some other stimulant, in order that it may be more readily absorbed. I prefer to administer it in connection with capsicum and camphor—the capiscum is preferable in the form of the tincture. Camphor is sufficient in many cases without other influence, but it makes an excellent adjuvant to opium.

Some distinguished practitioners adopt exactly the opposite mode of hastening and securing absorption by combining nauseants, instead of stimulants, with the opiates. With Prof. Gross a sufficient dose of morphia, combined with one-quarter or one-half grain of tartar emetic, is a favorite combination, and it is said to be very efficient, but, one would think, open to the objection of not being applicable in cases where there is considerable debility.

Such a combination, if used, should be prescribed in the first stage of the disease. It may be useful in the more advanced stages of such cases as may be complicated with congestion or inflammation of some of the organs. It is particularly applicable in cases of delirium ebriosum.

About the year 1851 chloroform administered by inhalation became popular as a remedy in delirium tremens, and it has some advocates at the present time, but it is not so commonly prescribed as formerly. From my knowledge of the results of its use I can not speak favorably of it.

In the year 1850 there were treated in the Charity Hospital, New York, three hundred and sixty-three cases of the disease, and of this number three died. In 1851 there were two hundred and sixty-two cases, and six deaths. In 1852 there were two hundred and forty-four cases, and ten deaths. In 1853, of two hundred cases, ten died. In 1850 the opium treatment was used exclusively, and the number of deaths was three of three hundred and sixty-three cases. In 1851–52, of four hundred and forty-four cases, there were twenty deaths. The patients were all of the same class, that is, of the lowest grades of the city, and the circumstances were the same, except that chloroform was used in a large number of these cases by inhalation, frequently as the sole remedy, but more frequently in connection with large doses of opium, or, more exactly, it was administered after repeated large doses of opium had failed to produce sleep, with a view of forcing sleep, and allowing the opium to have its full effect. It was never known to fail to produce its peculiar effect. The patients, in the course of a few moments, ceased their wandering talk and muscular motion, and passed into a profound stupor, which gradually became a deep sleep, lasting generally from twenty minutes to a half hour, when the patient would wake, appearing more rational than before, perhaps turn in bed, and again fall asleep to awake at the end of an hour, or several hours, in many cases convalescent. In many cases it was necessary to repeat the chloroform twice or three times before the patient became quiet, and now and then it happened that as soon as the effect of the anæsthetic wore off the delirium returned, and the case progressed as before. Many brilliant cures were made, but, as we have seen, many cases terminated fatally. Of those who died, some expired almost instantly, as people usually die from chloroform, but the majority after hours of profound stupor—not from the chloroform, but from the opium previously administered. Two deaths occurred under my own observation, in cases in which opium had not been administered, and, as before remarked, the event was, as usual, sudden and unexpected. In one case there were no complications; in the other there was pneumonia.

The facts just stated are, it would seem, sufficient ground for great caution in the use of this powerful medicine, especially in cases in which opium has been previously aministered in large doses. It completely overcomes, in a few moments, the excitement, which lessens the susceptibility of the system to the action of opium, and seems also to cause a change in the functions, by which absorption is allowed to go on, and the cumulative effect of several large doses of the opium is seen almost immediately. It is in this class of cases that there is the greatest temptation to use chloroform. We become weary of the raving and struggles of the patient, and, disappointed in the failure of the opium to accomplish our wishes, naturally seek something to rid us of anxiety.

It is hardly necessary to make more than an allusion to the hazard of administering chloroform in cases in which there are complications, as organic disease of the heart or pneumonia, and in cases where there is a strong tendency toward asthenia.

Within the last ten years, since the discovery of the narcotic property of the hydrate of chloral, that medicine has been extensively used in delirium tremens, alone and in combination with opium, bromide of potassium, and perhaps other drugs; and, undoubtedly, it has proved beneficial. It has the advantage over opium in acting more quickly and decidedly in this particular condition of the body, in quieting the muscular tremors and in causing sleep. This may arise from the greater effect on the functions of the spinal cord and the nerves of sensibility generally.

It is as often administered alone as in combination, and there seems to be no especially good reason why it should be combined with less active remedies, as the bromide of potassium, in the cases in which the chloral is most admissible. The bromide can scarcely have much effect in bringing about the decided results which usually follow; these may, in the main, be attributed directly to the chloral. This is not strictly true with regard to more decided and powerful narcotics, as opium, for there does appear to be some advantage in combining it with the chloral, especially if the last-named medicine is used in the advanced stages of this disease; for it is not necessary, in order to obtain the desired effect, to administer such large quantities of either, there seeming, as is seen by the combination of many other remedies in prescription, to be a sort of modification of the effects of the remedies by which the action of each becomes less active, but the combination is still potent. I will not say that this may not be as true in regard to the bromide of potassium, but it has not so appeared to me, in noting the effects of its combination with the chloral. I have not seen it stated that the influence of chloral is favorably modified, like that of the opiates, by combination with nauseants.

Chloral is most beneficial in the first stage of the disease, when the patient is suffering, not so much from actual delirium as from the condition which precedes it—that condition of disorder of nervous function and the functions of nutrition, which has appropriately been named the "horrors." At this stage, one or two moderate doses often suffice to end the case. Chloral is also better adapted to the treatment of cases resulting from the first debauch, or those wherein the strength has not been exhausted by the effects of chronic alcoholism.

It is to be regarded as a hazardous medicine in this latter class of cases, except, as already mentioned, in the outset, and its administration should be conducted with care.

Undoubtedly it is often beneficial, but it is too potent to be carelessly used in conditions of the body where a slight disturbance of balance may bring disaster. If the opinion with regard to its action which supposes it to be decomposed in the circulation, after absorption, and chloroform to result from the chemical change, then the objections to the use of chloroform in a measure hold good.

I can see no reason, supposing what has just been said to be true, why it is not better to administer chloroform in proper shape, and not make the necessity for chemical reaction before the effect desired can be obtained.

There is much difference of opinion as to the quantity of chloral which should be administered. The majority of practitioners seem to prefer to give rather full doses in the beginning of an attack, and repeating frequently until the case is under control. The usual plan is to prescribe twenty or thirty grains, one dose, to be repeated every hour until sixty or ninety grains have been taken, or until the patient sleeps. In many cases one dose suffices, but often the whole sixty or ninety grains is taken before the requisite influence is obtained. The sleep may be satisfactory and the patient may be well, but one never feels perfectly secure when more than sixty grains have been swallowed within a short period. We must remember that absorption may be often imperfectly performed, or wholly suspended, and may suddenly be resumed; that all the medicine swallowed within a number of hours may remain unchanged in the stomach for a considerable time, and the whole be taken into the circulation within a brief period with full effect.

Again, the secondary effect of chloral is depressing; it seems especially to weaken the action of the heart, and this forms a decided objection to its administration in large doses when the tendency is toward asthenia, or paralysis of the heart. The tendency toward this mode of termination is the main objection to the use of the remedy in the advanced stages of the disease.

The treatment with the bromides, particularly the bromide of potassium, just now so popular with the profession, has the merit of safety and moderate utility combined.

The bromide of potassium can not be said to be dangerous, and its hypnotic and calmative powers are sufficient in many cases to induce the necessary quiet and sleep.

We hear occasionally of instances in which it acts with unwonted power, not in causing sleep, but in producing sudden weakness and prostration. Such must be cases in which the strength is far spent, or in which the person is more than usually susceptible. In every such instance, so far as known to me, the dose has been very large, and swallowed in strong solution.

A common mistake is in the prescription of doses too small to obtain the good effect of the medicine. Ten or fifteen grains repeated at intervals of two or three hours is useless. We should go beyond the ordinary dose if we expect good results, and begin with from forty to sixty grains, and repeat at short intervals until some effect is observed. The medicine, especially in these large doses, should always be given in dilute solution. It may be given alone or in combination. Frequently something is gained by combining with it an opiate, and of the preparations of opium laudanum is the best.

There is also advantage in using in connection with the bromide camphor, which of itself has great value, and when the stomach is more than usually inactive capsicum, in the form of infusion or tincture. The addition of one or another of these adjuvant remedies is often speedily followed by good results, which before seemed not likely to be attained.

The bromide, like other remedies, has best effect in the first stages of the disease, and while so much less powerful than several other remedies, it is relied on as the principal, often the only medicine by many eminent practitioners and in several of the largest hospitals of the country. Like every other medicine, it often fails, but, unlike many others, it does no harm.

We find here and there a member of the profession still adhering to the opinion that alcohol is the main remedy for the cure of the disorders which it has produced; and, to some extent, this is well founded. We find often that, when an attack is pending, the free administration of alcoholic drinks, particularly wines and malt liquors, in connection with the volatile preparations of ammonia, will cut it short and establish convalescence. This is particularly true of persons with whom the habit of drunkenness is comparatively recent, and of those who are much debilitated.

Alcohol is thought also to be more beneficial in cases of the disease occurring in connection with injuries, in which almost uniformly the tendency is toward debility. Many practitioners resort to it from the beginning, and continue its administration until convalescence is established. Some claim that it is peculiarly indicated in this class of cases; but there is no ground for this opinion except what has already been stated, namely, the tendency toward rapid failure of strength commonly observed under such circumstances.

Alcohol does good by one of two influences. In the first place, it may act like others of the so-called cerebral stimulants, as a narcotic, and it is for this effect that it is prescribed in the early stages of the disease, with the frequent good results already mentioned. Although sufficiently powerful as a narcotic to control the disease in its incipiency, it is not effective later, and it is questionable whether its administration is justifiable, unless it be to fulfill the second indication for its use, namely, to strengthen the action of the heart, and assist in preventing death by asthenia, avoiding sudden prostration and paralysis of the heart.

Perhaps this indication might be fulfilled as well by other medicines, as camphor, but the effect of alcohol is so well known, and has been so thoroughly tested, as to cause us to hesitate in substituting for it any thing which we do not know to be equally reliable.

It does seem a little contradictory, that we prescribe as a medicine the same agent which has brought upon our patient his disgrace and degradation, and perhaps we are amenable to the code of morals on this score.

The treatment with large doses of digitalis proves nothing, except that the medicine may be taken with impunity under certain conditions of the digestive and nervous systems in quantities formerly considered deadly. Although many patients recovered, perhaps more promptly than under some other modes of treatment, escaping the dangers both of the disease and the poison, so many died as to cause alarm and the disuse of the remedy.

What has already been said concerning the state of the function of absorption, and the impressibility of the nervous symptoms, will perhaps explain why the enormous quantities of this active drug produced so little of its characteristic influence.

ART. III.—*A New Principle in the Application of the Obstetric Forceps.* By SAMUEL D. TURNEY, of Circleville, Ohio, Adjunct Professor of Obstetrics in Starling Medical College, Columbus, Ohio. Read before the Central Ohio Medical Association.

It has been but a few years since all medical authorities agreed in advising the use of the obstetrical forceps only when the life of the child or of the mother was seriously endangered. Acting upon this teaching, the woman was often left in the second stage of labor until on the verge of exhaustion, and only when death seemed inevitable without instrumental interference, the attending physician reluctantly applied the forceps. From the long-continued pressure of the head of the child, and the disturbance of circulation incident to these protracted labors, followed a train of evils—fistulæ, cellulitis, peritonitis, and abscesses—which, on the *post hoc propter hoc* theory, were illogically laid to the account of the instruments.

A better acquaintance with the true cause of these diseased conditions has at length exonerated the forceps from these unjust charges, and the physician of to-day knows that in their timely and skillful use lies safety for the mother and child.

But although fairly exonerated from responsibility for most of the diseases which follow child-bearing, there is one injury which very frequently accompanies, and which is undoubtedly often due to, forceps delivery. This is laceration of the perineum. Even when the greatest care is exercised to avoid injurious haste, and to make traction only in the line of the curvature of the inferior strait of the pelvis, laceration of the perineum is, I think all physicians will admit, very common in cases terminated by such instrumental means.

Is this accident unavoidable? Is it justly chargeable to the use of forceps, or is it due to a faulty mode of using them?

To consider these questions, let us briefly look at the mechanism of the passage of the head of the child through the vulva. In unaided natural delivery, toward the termination of the second stage of labor, with each contraction of the uterus the head presses upon and distends the perineum; as the pain subsides the head recedes, and during the interval of repose, the perineum, freed from distending force, recovers a portion of its elasticity and partially recontracts.

This process of alternate distention and contraction goes on for a longer or shorter period, until the perineum, losing rigidity, allows of the full dilatation of the vulva, and the child is born; or the perineum remaining rigid, the expulsive efforts becoming progressively more powerful, it gives way, and we have some form of laceration. In these cases of natural delivery there is a disproportion between the expulsive force and the dilatability of the perineum, and whatever increases that force in this condition of the perineum increases the danger of its laceration.

The ordinary mode of using the obstetrical forceps, when the directions laid down in systematic works on obstetrics are followed, does this, and is, consequently, a very frequent cause of this injury. The universal teaching, so far as I know, in the use of these instruments is, if there are uterine pains to make traction during the pain—that is during the expulsive effort—this rule, probably all right when the head is in the cavity of the pelvis, is, I think, all wrong when the head is at the outlet.

This increase of expulsive force is, I believe, a capital error, and a source of much mischief. Believing this, I have for some years adopted an entirely different mode, making little or no traction during the pain, but in the interval of the pain using enough traction to prevent recession of the head of the child and holding it firmly against the perineum. This prevents a recontraction of the perineum, and converts a violent intermittent distensive force into one which is slowly acting and persistent. Under this moderate but constant pressure the perineum surely and safely dilates, and laceration is avoided.

I have been satisfied with the results of this practice, and think the rule in the use of the forceps, when the head is pressing upon the perineum, should be reversed, and should stand: *Make no traction during the pain; let the traction be made in the interval of pain.*

ORIGINAL LECTURES.

ART. IV.—*The Female Pelvis.* A Lecture delivered in the Preliminary Course of 1876, Starling Medical College, Columbus, Ohio. By H. G. LANDIS, A.M., M.D., of Niles, Ohio.

To consider the female pelvis properly, it is necessary to do more than become familiar with what might be called its surface anatomy. It must also be studied with special reference to its functions, and the relations it bears to the child. This is, for the most part, true of any part of the human organism. You will not proceed far with your studies before discovering that anatomy, regarded only as a study of names, is a dry and profitless task; but when a knowledge of the uses and relations of parts is added, it becomes a pleasant, and even fascinating, pursuit. This is conspicuously true of the pelvis. Regarded only from an anatomical stand-point, it is a rather intricate and puzzling frame-work; but when we discover its real uses and the reasons for its peculiar shape, it becomes one of the simplest and most to be admired exhibitions of the wisdom of the Master Builder.

Without further preliminaries, we will proceed at once to its investigation. The pelvis takes its name, as you are aware, from a fancied resemblance to a basin, and is also divided into two parts or basins—the upper, or false, and the lower, true or obstetric pelvis. With the upper division, which is, as you see, very incomplete, we have little to do. It is made up by the wings of the ilium and sacrum on either side, and the vertebræ posteriorly. These wings give attachment to muscles which, either in substance or by their tendons, pass through the pelvis. They are also of importance as affording protection to the viscera. In the sitting or recumbent posture, they do, indeed, serve to some extent as a basin in which the contents of the abdomen may lie, and in this way they may be said to act as a cushion for the gravid uterus. But in the erect posture, which is, of course, the most common one, they are almost perpendicular, and furnish no support whatever. This will become more apparent in our study of the real pelvis, to which we shall now confine our attention.

The real pelvis begins above, in a complete, bony ring, into which three bones enter—the sacrum, ilium, and pubes of either side. The dividing line is called the linea ileo-pectinea, and is continuous from the spine of the pubes around to the sacral promontory. This is generally known as the superior strait, and is the entrance of the passage through which the child is propelled in its delivery. Although I have called this a ring, you will at once perceive that it is by no means regular, having an outline which is frequently compared to the ace of hearts. You will further notice that the component parts of this ring are not in one plane surface, although they are generally regarded as being so in most, if not all, text-books. Leishmann goes so far as to state that their being in one plane is a peculiarly human attribute. But on inspection we find that a line drawn directly across it, from one ileo-pectineal line to the other, is quite a distance below the level of a line drawn from the sacral promontory to the top of the pubes. There is, therefore, no one plane for the pelvic brim. If, holding the pelvis horizontally, we begin in front and follow up the ileo-pectineal line, we shall find it nearly in the same horizontal plane until it reaches the sacro-iliac joints or symphyses on either side, after which it gradually rises until we find its continuation on the sacral wings running upwards and forwards into the promontory. The linea ileo-pectinea is therefore in the same plane throughout its entire length on either side, but the two planes which these lines subtend intersect each other in the median line. Thus we have two planes instead of one. What, then, is the reason for this? or is there any reason why we should insist on observing this variation of the pelvic entrance from one plane surface? As was intimated before, the knowledge of the uses of a part are necessary to a complete understanding of its anatomy; and I would remark, in passing, that there is very little about the human body that is without use or reason, if we could but find it out. The child's head passes through this strait, and the strait ought, therefore, to bear some definite relation to the head. Let us, then, take a transverse section of the child's head as it usually enters, and learn in what manner it corresponds with the passage provided. We shall find this section to be of an elliptical outline, and on applying it to this ring, we shall also find that one side of it completely corresponds to one side of the pelvis, leaving a space to one side and behind. And so we may apply it in like manner to the other side, with the same result. As the professor of obstetrics will also tell you, the child's head may and does enter in one of four ways—either with the occiput in front, and to the left or right, or posteriorly, and to the right or left; in other words, with its long diameter coincident with the long diameter of one or other of these two elliptical divisions. Putting these links together, we may now see why the strait of entrance to the pelvis is of this shape, viz., a double ellipse, or rather composed of two elliptical openings, partially fused together, and precisely coincident with two similarly overlapping sections of the fœtal head. It is in order to permit of this variety of positions for the easy entrance of the head. For our present purpose we may leave out of sight the consideration of its adaptation to breech presentations, though it is apparent that the breech is similarly elliptical in outline. There is another reason. You will notice that the long axis of the child's head is at right angles to that of the shoulders. If, then, a head passed through an ellipse of similar size, it is obvious that before the shoulders could pass through the same figure, there must be a rotation through an arc of 90°;

that is, if the long diameters of the shoulders, head, and ellipse were nearly of the same size, which is substantially the case. But in the pelvis this is provided for by this arrangement of two canals, so that the head, having descended through one, the shoulders may follow in the opposite one without inconvenience. We will notice that in these two ellipses the long diameters correspond with what are called in the text-books the oblique diameter of the superior strait. These diameters are not given exactly alike by all authors. According to Meadows, they are drawn from the sacro-iliac symphysis of either side to a point opposite the pectineal eminence of the other side. They form with each other an angle of about 80°, and with the median line an angle of about 40°. Remember, also, that these two planes are inclined towards one another at a considerable angle, and that, therefore, the *axis* of each plane is directed downwards, backwards, and inwards. The inclination of these axes to the median line is at least 40°. These planes are bounded by a line corresponding exactly to the ileo-pectineal line, which the generally asserted plane of the superior strait does not. We shall further find that clinical experience as to the direction of the child's head in passing through the entire pelvis coincides with these statements. I dwell at some length on the shape of the pelvic inlet, because it explains the whole pelvis when rightly appreciated.

Let us now turn to the outlet. Here is another ellipse, bony in front, being bounded by the pubes of either side, and, further back, the ischia. In the posterior half it is limited by the sacro-sciatic ligaments; and at the extreme tip is the coccyx, capable of considerable motion backwards. Its long diameter is in the median line of the body, and its short diameter, therefore, at right angles to that line. There are, however, some points of difference between it and the inlet, irrespective of the fact that we have here but a single mode of exit, while above we had a double mode of entrance.

And first, though it is of the same shape as the child's head, the diameters are all comparatively large, whereas, at the inlet, the fit was a pretty snug one; also, it is only in its general outline that the outlet is elliptical. There is no well-defined bony rim, such as we found at the inlet. You will find in the text-books the statement that the long or conjugate diameter of the outlet or inferior strait extends from the subpubic ligament to the tip of the coccyx, and its transverse diameter from one tuber ischii to the other—points which are by no means on the same level. To speak in the same breath of the plane of the outlet, is rather inconsistent. We have, however, no practical grounds on which to reject it entirely, but it is well to recognize its entirely artificial character. This outlet is the bottom of the pelvis, and its distance from the inlet is the measure of the depth of this basin. The average depth of the pelvis is from four to five inches. It must not be forgotten that in the recumbent position the general plane of the inferior strait is perpendicular, and that the bottom of the pelvis looks forward.

I now ask you to follow me in a short course of reasoning. If the child's head corresponds closely in shape to the canal through which it passes, or rather if a section of the head represents the caliber of this canal, the direction and longitudinal shape of the canal may be found by observing in what manner the head passes through it. If the beginning and end of the canal are elliptical planes, the whole canal is no more than a continuous succession of similar planes. We have seen that the head invariably enters the pelvis with the long diameter of its elliptical section at an angle of 40° with the median line, and emerges from the pelvis with the long diameter coincident with that line. Therefore, in traversing a canal, say four and one-half inches long, it has moved laterally through an arc of 40°; or, in other words, the motion has been spiral, and the canal is likewise spiral in shape. I said the head *invariably* entered in this position. The early writers of this and the preceding century placed scarcely any limit on the original positions of entrance; and at first sight there appears to be no reason why the head should not enter in the transverse diameter of the whole pelvis. But it has long since been found to be a clinical fact that it seldom, if ever, does so enter, and late writers now disregard any other *natural* positions than those already mentioned. We now see the mechanical reasons for this. In screwing a bolt into a nut, the screw must be started and maintained in a certain way. The thread of the screw must correspond to the thread of the nut; and so in the pelvis: the head is to be propelled along a spiral course, and must enter with reference to this fact. To recapitulate the facts already learned: The pelvis is a partially double spiral canal, *i. e.*, having a double entrance and but a single outlet. We can now study it in detail, having obtained a general knowledge of its form and uses, and in so doing we will first endeavor to find out where the double canal first becomes a single one, or, in other words, where the line of fusion is. If we look into the pelvis from above, we notice most prominently two decided projections of bone, which are evidently the limiting points of the transverse diameter of the outlet; for, though these points are a little higher up in the pelvis, it is evident that any thing which can pass between them can pass further down. They are the "narrows" of the pelvis. These are the spines of the ischia. You will notice that lines drawn from the margin of either initial ellipse, and nearly parallel to its axis, strike both of these points. They are, therefore, the limit of direction in this axis; and it is at this point that the two canals are fused into one. Thus you see that, so far as the bony parts are concerned, the double character of the pelvis is well nigh entire. A very narrow rim at the outlet is the only part which is completely single in structure. This, however, is enough to determine the subsequent direction of the child's head. When the soft parts are added, the single canal is found to be quite as long as the double ones, but upon this we shall not have time to dwell at present.

On close inspection we shall notice a rather poorly defined line running upward from the ischial spines of each side to that point on the ileo-pectineal line opposite the aoetabulum. This line divides the pelvis into two parts on each side. Those in front are designated as the anterior inclined planes, and those behind as the posterior inclined planes. These planes, whose direction is, as you see, nearly opposite, are important in determining the direction of the passing head; but this line is in one sense the measure of the resultant forces of the two sets of inclined planes; in other words, is the thread of the screw along which the head moves. If this were a groove or depression instead of an elevation, we might say that the pelvis was rifled. We are now prepared to make another general conclusion. Although the spinal course along which the head moves is a continuous succession of elliptical planes, the circumferences of these planes do not offer the same amount of resistance throughout to the passage of the head. Unlike a uniform metallic tube, there are certain points of more important influence than others. As we see, a large portion of the pelvis is destitute of bone. The large obturator foramen in front, and the sacro-ischiatic foramen behind, even though filled up with other tissues, offer very little resistance, and the sacro-sciatic ligaments are quite elastic when compared with the firm bone. The head in passing through meets with the most resistance at two places: First, at the beginning. As we have seen before, if the head fits at all closely it must enter with considerable exactness; and you will learn in your further obstetrical studies that it is at the brim, *i. e.*, at the beginning of the course, that the principal delays in labor take place. Secondly, at the ischial spines occurs the greatest resistance; at the beginning of the single canal, the second point of entrance.

Let us now notice another fact. The ilium, ischium, and pubes may be said to contribute almost equally to the anterior portion of the pelvic canals, but the posterior half of the pelvis, so far as its bony frame-work is concerned, is made up exclusively of one bone, the sacrum, and its continuation, the coccyx. It would be well, therefore, to scan this bone somewhat carefully. In looking at it *in situ*, we may notice that its borders, below the level of the inlet, run quite accurately in the direction of the axes of the canals on either side, viz., downward, backward, and inward; while its central surface presents a flattened aspect, upon which the free sides of the two canals are merged. This flattened central surface, which really is a measure of the mean direction of the two, has been generally regarded as parallel to the axis of the whole pelvis, as indeed it is, but I think we have seen that the pelvis should not be considered as a whole. It is, indeed, useful and necessary to remember the direction of this sacral surface; but I repeat that you will find, clinically, what we have asserted as the result of this anatomical study, that the child's head does not move in the axis of the whole pelvic cavity, as the text-books assert, but that it does move in one or other of the axes of the two opposite canals of which the pelvis is composed. This sacral axis is, for almost the first half of its course, nearly in a straight line downward and backward, after which it takes a nearly parabolic course in a generally downward and forward direction. In this connection, we may again notice that the line running upward from the ischial spines to the ileo-pectineal eminence is almost, if not quite, parallel to the sacral edge of the same side, and in one direction parallel to the general axis of the whole pelvic cavity. But you can not fail to see the inward direction as well, and its parallelism with the real axis of either side.

The spirality of the pelvis has frequently been noticed, at least incidentally. Hodge, who has brought the present teachings of the mechanism of labor to its highest point of scientific excellence, could not fail to notice the spiral motion of the head. But the disregard of the doubleness of the pelvis, and the consequent inward direction of the pelvic axes, has led to frequent absurdities in teaching. I should not allude to these absurdities for the mere purpose of claiming priority in discovering them, but I am well convinced that their perpetuation is inevitably connected with erroneous and cloudy ideas of the pelvis. Take, for a moment, a fœtal head; place it in the first position of the vertex, and let it descend strictly in what all authors agree to call the axis of the pelvis: I think you will agree with me that, before it can be born, the ischium must be removed.

A word now as to nomenclature. I have purposely refrained from calling particular attention to the names of the parts we have been studying, or even naming at all the canals we have found, deeming it better that you should first see the uses of an object, and, having thus a definite knowledge of it, be forced to find out its name, in order to speak or think of it. I fear that the student is too often content with learning the names of parts that he may *appear* to know something of them on the day of examination. I have, however, taken it for granted that the names of the bones and ligaments which compose the pelvis are not altogether unfamiliar to you. The pelvic canals, then, may take their names from the so-called oblique diameters, which are their long diameters. Unfortunately, what American and French authors call the right oblique diameter, English and German authors call the left oblique. The one name it from the sacro-iliac symphysis, from which it springs; the other from the acetabulum. We will notice that the diameter our countrymen call the left oblique is the long diameter of that canal which lies principally on the right side of the pelvis; *i. e.*, its bony walls are greatly in excess on that side. I think, therefore, although it is the Centennial Year, we had better desert to the English and German side, and call this the right canal, and its beginning the right superior strait: this the left canal, and its beginning the left superior strait; for it is better to be right than American. The right canal is a little larger for two reasons: First, because it shares in the generally better development of the right side of the body, though Schweighaüser, as quoted by Schrœder,* attributes it to a somewhat different cause; secondly, because the rectum encroaches a little on the left side. The difference is, however, so slight that a head has, usually, little more difficulty in descending through the left canal.

Besides understanding the uses of the various parts of the pelvis and their relations to each other, it is well to understand their relation as a whole to the rest of the body. The pelvis does not usually lie in this flat position, as we would certainly imagine at first sight. It is, when the body is erect, inclined at an angle of about 60°, so that the anterior face of the pubes is turned downward until it is almost horizontal. To comprehend why this is so will lead us next to consider another function of the pelvis. Besides serving as a passage-way for the child, the pelvis has a more important use—more important because it is a permanent one, while the parturient function is only occasional; nor could the latter be performed without the former. It serves also to transmit the weight of the body to the lower extremities. The weight of the body is transmitted to the vertebral column as far as the pelvis; for all parts of the body above this point have a more or less direct connection with the vertebral column. The sacrum, therefore, in a measure, supports the weight of the body, which is a sufficient explanation of its massive proportions. This weight is thence transmitted to the acetabula, where the femora upon each side divide the burden. If we look at a male pelvis, we shall see that to transmit this weight there is a nearly straight beam from the sacral promontory to the acetabulum; and this is all that is needed. It has the greatest amount of strength, and there is room between the beams to contain all the necessary viscera. The infant pelvis of both sexes is substantially the same in structure. But if the female pelvis were thus constructed, there would not be room enough. Here the beams are replaced by two outward curving arches, extending from the same points. A large joint divides each arch to the sacral side of their centers, viz., the sacro-iliac. This joint has a double purpose: First, as in the male pelvis, it diminishes the liability to fracture of all the bones forming the arch or beam; and, secondly, it allows of motion in two ways: first, of a separating motion which would increase the size of the pelvic cavity; and, secondly, of a to and fro motion of the sacrum which allows of changes in the equipoise of the body.

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* Manual of Midwifery, p. 3.

There are many interesting facts concerning the mechanism of these joints, in connection with the sacrum in general, which have been brought to the notice of the profession principally by J. Matthews Duncan, whose works I recommend to you as not only furnishing valuable information, but as tending to awaken habits of thought and research, which will be still more valuable.

There are two ways of regarding the sacrum from a mechanical stand-point: as a keystone of an arch, or a wedge, which is substantially the same thing. It certainly is a wedge in shape. It is four and a half inches wide at its base, and in a length of four and a half inches tapers to less than an inch in width. It is wedge-shaped, also, in its lateral aspect; and more important than this, it is wider in front than behind, and therefore shaped as a keystone in that respect. You will also notice that the posterior half of the pelvis seems to form a somewhat irregular arch. At this point many have jumped to the conclusion that the sacrum was the keystone of this arch, which, as you will presently see, is a great error. In the first place, the keystone is upside down. The back of the sacrum is really the top of it, and the direction of pressure is, therefore, more from behind than through the length of the bone. In the second place, there is no true arch in the pelvis, as a whole. The duality of the pelvis is borne out here as well as in its parturient functions. Hence the two arches to which your attention was called a a moment ago. The sacrum, then, when the body is erect, does not slide between the ilia as a keystone, but is supported and fastened to them by these stout sacro-iliac ligaments, so that it swings between them, in a manner, as if hung on a pivot. This is a much more elastic, and I might add comfortable, arrangement than would result result from the jarring motion of a keystone jammed between solid, bony supports. But while you notice the length of the sacrum, and the easy manner in which it is swung at the top of the pelvis, you will also observe that there is danger of too much rocking motion. This is prevented by belaying the sacrum, so to speak, by the sacro-ischiatic ligaments, which keep it from tilting too far back. These facts are not without some practical value; for, although the mobility of these joints during labor is doubted by some, I am persuaded that so capital a contrivance would never have been furnished by the Great Architect for any purpose, if the purpose was not to be fulfiled Thus, when the head is entering the pelvis, any thing which will separate the sacro-iliac joints will, of course, facilitate that entrance; and when the head has descended further, any thing that will stretch the sacro-sciatic ligaments will similarly enlarge the lower portions of the pelvic cavity by allowing the sacrum to be pushed back. This would suggest that at the beginning of labor the recumbent posture is the more favorable for the entrance of the head, so far as the pelvis is concerned, and that as the head advances the side posture is preferable, insomuch as it allows of the more free extension of the sacrum and coccyx. There is in women much difference as to mobility of these joints. If they are nearly or quite anchylosed, of course a change of position would have no influence; but I have too often seen a tedious labor speedily terminated by a change of position not to know that the mobility of the sacro-iliac joints can frequently be turned to advantage. I need scarcely say that motion in either of them would be impracticable if it were not for this large joint in front, the symphsis pubis, which, to some extent, serves as a hinge-joint.

We have thus briefly passed in review the essential points in the physiological anatomy of the normal pelvis, and I doubt not that all you may learn in future of the mechanism of labor at the bed-side will corroborate these views. If time permitted, it would be no less useful to study pelves which are not normal, and to find out if deformities follow any definite laws. One remark in this direction is all that need at present be presented. If one of these sacro-iliac joints should become anchylosed in youth, one side of the pelvis would be obliterated for parturient purposes; for, as the arch is formed during the period of growth, its development would of course be stopped. A similar condition is diagrammatically represented in figure 17 of Schrœder's Manual of Midwifery, which illustrates very well the original doubleness of the pelvis, and the possibility of child-birth with the obliteration of one-half of the pelvis.

CLINICAL RECORDS.

ART. V.—*Case of Severe Hæmorrhoids successfully treated by Galvano-Caustic.*

By W. M. CHAMBERLAIN, M.D., of New York.

The patient first consulted me in the spring of 1874. She was a slight, pale woman, about 30 years of age, and of highly nervous temperament. Her account of herself was such as is common in cases of aggravated hæmorrhoidal tumors, and examination shows a large mass of internal piles, ulcerating and much inflamed. Rest and cooling applications were advised until the temporary aggravation should subside. The operation for removal was urged upon her, and she promised to return, but failed to do so, and I saw her no more until the 17th of February, 1876. Her appearance had greatly changed for the worse. She was extremely anæmic and haggard; her lower limbs were œdamatous. She told a story of frequent and frightful losses of blood; of a mass protruding at every slight movement; of distressing tenesmus. She stated that from six to ten movements of the bowels occurred daily, always attended with more or less bleeding, of palpitation, muscæ volitantes, fainting fits, and other phenomena of anæmia. Examination revealed the largest mass of hæmorrhoids which it has ever been my fortune to see. The protruded portion was equal in size to the half of a large orange, that is, it was from 2½ to 3 inches in each of its horizontal and in its vertical diameters, composed of five more or less completely divided lobules. Its surfaces were of a dark purple color. There was but little hypertrophy of the connective tissue. The tumor consisted mostly of a congeries of dilated veins, extending as high as the internal margin of the sphincter ani, around which was felt, as it were, a ring of enlarged arterial trunks, pulsating with a force equal to that of the brachial artery. A "collateral" circulation had thus been developed to supply the waste going on daily for years. It was evident that medical methods would not suffice for a case so aggravated, and surgical management presented very considerable difficulties. Direct excision would certainly be attended with a hæmorrhage too hazardous to a patient already exsanguinated to such a degree. The eraseur, clamp, or ligature would be followed by an ulcerating surface too extensive to be safe to a person so cachectic. Some secondry hæmorrhage might be anticipated, possibly thrombosis; phlebitsis, and pyelitis, one or all. Separation of such a mass would be slow and the pain intolerable.

I had recently read in Braithwaite for January, 1875, a paper credited to the London Medical Record, of May 20, 1874, describing the method of reducing the size of hæmorrhoids intractable by other operation—by linear cauterization of the anus. In this paper cauterization is described as consisting of four lines radiating from a point one centimetre (.38 of an inch) within the margin of the anus and extended to the cutaneous surface. The instrument employed was a knife-shaped steel cautery brought to white heat in a furnace. The proposer of the method was M. Worllemier, of Paris. The mode of cure is represented to be by contraction of the cicatrices and a consolidation of subcicatricial tissue—the result of heat directly applied.

It seems to me that the effect of the operation would be much increased by extending the lines of cauterization over the whole face of the tumor, and from previous experience with the cautery, I did not recognize difficulty or danger in so doing; and the galvanic wire was certainly to be preferred to any furnace implement.

Prof. Piffard, whose galvano-caustic apparatus is certainly as neat and effective as any which has been given to the profession, kindly offered to operate the battery for me. As the application would require but very little time, nitrous oxide was chosen as the anæsthetic, and was administered by Dr. David Goodwillie. Unconsciousness was secured in about one minute. The tumor, which had been protruded as far as possible by the efforts of the patient, was further everted by forcible pressure from three fingers of the left hand passed into the vagina, according to Stover's proceeding. Having bent the loop of platinum wire so that the two strands, lying parallel and in contact with each other, followed the spheroidal surface of the tumor for about two and a half inches from the cutaneous margin of the anus to within the sphincter, the current was turned on, the wires, raised to a dull red heat, were allowed to sink into the surface, previously carefully dried. The operation was repeated five times, along the middle line of each hæmorrhoidal lobule. A cord of condensed tissue was found to lie beneath and around the line of each eschar. The parts were then oiled and returned into the rectum, and a cold water ocmpress applied. Morphia administered hypodermically. No hæmorrhage followed, and the pain was inconsiderable. The following day there was some traumatic fever, the tumor was increased in size and more painful. The sloughs came away on the fifth day, and progressive diminution of the mass continued, until twenty days later the reduction was estimated from one-third to one-half. The comfort of the patient had increased in a similar ratio. There had been no bleeding. The question then arose whether the operation should be repeated. It seemed probable that two more such cauterizations might practically cure the case, but the mass had now become so much less vascular, so much more firm, that I did not hesitate to undertake the entire removal at one sitting.

This was done by encircling in detail each of the five lobules with the wire loop, heating it to redness and tightening the wire. There was no hæmorrhage. The after treatment was simple—oiled compresses, hypodermic morphia, and restraint of the bowels for six days. There was less pain after the second than the first operation. The slough separated in five days, leaving a smoothly granulating surface, which was kept carefully clean until it cicatrized. A fortnight after, the parts showed hardly a trace of the operation; there was no cicatricial hardness, the functions of anus and sphincter were painless and perfect; the bowels moved easily once a day. I have to-day (September 12) examined this patient. The parts remain in a quite normal condition.

There has been no trouble or difficulty of any kind. There is nothing to suggest reproduction of the tumors.

This case is interesting mainly for the result of the first operation, which showed, so far as a single case can show, that tumors composed mainly of venous tissue may be diminished in size, not merely by the amount of tissue brought to the state of an eschar, but beyond that by a contractile influence resulting from the burn. When the heated knife or wire divides a mass of vascular tissue, bleeding is prevented by a coagulation of all the albuminoid elements in the blood and in the tissue. A plug of hardened albumoid substance occupies the lumen of the blood vessels for a certain distance on either side of the line of division. The circulation in the tumor is thus obstructed, and a certain amount of atrophy is the result. For the repair of destroyed surfaces, nature produces a local hyperinosis and effused fibrin always retracts. Thus it would seem that we have in preliminary cauterization a means of reducing the size and vascularity of hæmorrhoidal tumors when those conditions lead us to hesitate about a radical operation, and that a radical operation, thus preluded, becomes less grave and more satisfactory.

68 West Fortieth street.

ART. VI.—*Case of Severe and Complicated Wounds.* By J. C. KROESEN, M.D., Columbus, Ohio.

Mary Childs, æt. 44; married; has never borne children; has usually enjoyed excellent health.

On the 10th day of May, 1875, she was suddenly attacked by her insane nephew, armed with a pistol and a razor, who inflicted upon her head, shoulder, and abdomen the following described wounds:

Wound No. 1.—Commencing about one inch above the middle portion of the right supra-orbital ridge, and extending downwards and across the face; passing over the nasal bones, and reaching to a point beneath the left eye corresponding to the inferior portion of the malar bone. Throughout the greater part of the wound the weapon glided to the bone.

Wound No. 2.—Small punctured wound on upper and middle portion of frontal bone. Evidently made with the hammer of a pistol.

Wound No. 3.—Beginning about one and a half inches behind the outer canthus of the left eye, and running backwards for a distance of about three and a half inches; passing through the fossa of anterior helix of the ear; severing the middle temporal in its course. The hæmorrhage from this wound was considerable.

Wound No. 4.—Commencing near the middle portion of the left infra-orbital ridge, and extending downwards and outward about an inch and three-fourths.

Wound No. 5.—Commencing just to the rear of the left acromion process, and extending downwards and inwards, passing across the spine of the scapula. Length of wound about four inches.

Wound No. 6.—Beginning near the seventh and eighth ribs of the left side, and passing slightly downwards and across the epigastric region for a distance of eight and a half inches, dividing the costal cartilages and penetrating the cavities of the abdomen and stomach; the wound through the walls of the stomach being about two and a half inches in length, and situated on the anterior aspect, and about half way between the greater and lesser curvatures. The wound in the abdominal walls had the appearance of having been caused by more than one stroke of the razor, for an incision was observed about an inch below the first one described, into which it converged, and was finally lost at the point of entrance to the abdominal cavity. There was considerable and persistent hæmorrhage at the wound in the stomach from branches of the gastric, which was finally controlled by the application of common table salt to the parts. The transverse colon, and portions of the adjacent parts, protruded through the wound, over which had escaped the greater portion of the stomach's contents from the wound in that organ.

Treatment.—The temporal artery was first taken up, and the exposed viscera carefully sponged, and hæmorrhage restrained. The mucous membrane protruding through the wound in the walls of the stomach was carefully returned, and the lips of the wound brought into coaptation. Silver wire sutures were inserted about half an inch apart, the wire ends clipped close and turned down. The viscera was then returned within the cavity of the abdomen, and the wound in the abdominal walls dressed with wire sutures and adhesive plaster.

The wounds upon the head and shoulder were dressed in the usual way.

Half a grain of morphia was administered per oram before the wounds were dressed, and about one-half grain an hour afterwards Patient rested well until about 8:30 P.M., when she grew restless. A half grain of morphine was then given hypodermically, which soon produced the desired effect of the drug. Pulse 100; temperature 98.

May 11. Patient rested well through the night until 4 A.M., when a dose of morphia was given by the mouth; this the patient threw up; another dose was given, which was retained. 7 A.M.—Patient resting quietly; no pain; has micturated freely; has some thirst, which is allayed by small pellets of ice. Pulse 100; temperature 98; respiration 16. 10 A.M.—Patient resting well. Pulse 104; temperature 98; respiration 16. 1:15 P.M.—Patient quiet; takes pellets of ice occasionally; no pain; answers questions; no swelling perceptible about the wound in the abdomen, which has a favorable appearance. The wounds on head appear to be healing rapidly by the first intention. Pulse 104; temperature 98; respiration 16. Gave ½ gr. morphia hypodermically. 7 P. M.—Patient complains of slight pain in left side; external appearance of wounds good; has some thirst, for which ice is given; has some desire for nourishment; a small quantity of coffee was allowed. Pulse 110; temperature 99; respiration 16. Hypodermic injection of morphia, gr. $\frac{1}{2}$. 10 P.M.—Resting quietly; pulse 108; temperature 99; respiration 16. No pain; a morphia powder left to be administered during the night.

May 12. 6 A.M.—Patient somewhat restless; has a slight cough at intervals; wounds healing rapidly on face and shoulder; wound in abdomen discharging favorably; a slight swelling and tension observed over the pyloric portion of stomach. Pulse 120; temperature 101$\frac{1}{2}$; respiration 15. 10 A.M.—Patient somewhat restless; labored respiration; swelling over pylorus portion of stomach still marked; no increase; micturated freely. Pulse 140; temperature 102; respiration 14. Dose of morphia administered hypodermically. 1:15 P.M.—Resting well; takes ice; one or two spoonfuls of coffee; no apparent change in the condition of the wounds. Pulse 136; temperature 100$\frac{1}{2}$; respiration 16. 3:40 P.M.—Pulse 134; temperature 99$\frac{1}{2}$; respiration 16. 6:15 P.M.—Patient restless; a little beef tea prescribed. Pulse 140; temperature 100$\frac{1}{2}$; respiration 19. 10 P.M—Pulse 136; temperature 100; respiration 24, and labored; has urinated freely; moans as in pain; 1 gr. of morphia administered hypodermically; no perceptible increase in the swelling over the stomach.

May 13. 5 A.M.—Patient rested quietly through the night until 4 A.M., when she became restless; has difficulty in swallowing; respirations labored and unsteady; coolness of extremities; bowels slightly tympanitic. Pulse 135; temperature 101; respiration 24. $\frac{1}{4}$ gr. morphia given hypodermically. Patient rested well until 7 A.M., when she died.

CORRESPONDENCE.

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211 West Thirty-eighth St., New York, Sept. 18, 1876.

Dear Doctor: The International Medical Congress, which was formally opened at noon on Monday, the 4th day of September last, in the University of Pennsylvania, Philadelphia, Pa., closed its arduous labors Saturday, the 9th inst., after listening to an excellent address on Medical Education and Medical Institutions in the United States, by N. S. Davis, M.D., of Chicago, and a valedictory by Prof. S. W. Gross, the Nestor of American surgery, who so ably presided over the deliberations of this most distinguished body of physicians, who, for the first time in the history of this Republic, assembled to participate in our Centennial rejoicings, and for interchanging views on the most important subjects connected with the well-being and happiness of the human race. I say the happiness of the human race; for where there is no enjoyment of health there can be no happiness.

The men congregated in Philadelphia from all parts of the world to discuss the questions of prevention, causes, nature, and cure of diseases, deserve the compliment of having their names and deeds recorded in your valuable Journal. In accordance with my promise given you when I had the pleasure of meeting you in Philadelphi, I transmit to you some notes on the proceedings of this Congress.

The first meeting, on Monday, the 4th inst., took place at twelve M., after prayer by the Rev. Wm. Bacon Stevens, M.D., D.D., LL.D., Bishop of Pennsylvania. An address of welcome was delivered by Prof. S. D. Gross, President of the Centennial Commission. The number of delegates by this time was over four hundred, from different parts of the United States, and seventy from foreign countries. Among the latter were some of the most renowned medical men of England and Canada. It would be out of place to give you all the names of the delegates, but I will name some whose standing is recognized in the profession, to give those of your readers who were absent an idea of the great talents that adorned the halls of the University chapel, where the meetings were held. We had with us Wm. Adams, Esq., F.R.C.S., of London, England; John L. Atlee, M.D., Lancaster, Pa.; Washington L. Atlee, M.D., Philadelphia; Fordyce Barker, M.D., New York City; Robert Barnes, M.D., London, England; Roberts Bartholow, M.D., Cincinnati, Ohio; John S. Billings, M.D., U.S.A., Washington, D. C.; Henry I. Bowditch, Boston, Mass.; John H. Brinton, Philadelphia; W. H. Brouse, M.D., Prescott, Ontario, Canada; T. Lauder Brunton, M.D., London, England; A. H. Buck, New York City; L. D. Bulkley, New York City; T. J. Bumstead, M.D., New York City; W. Burt, M.D., Paris, Ontario, Canada; Wm. H. Byford, Chicago, Ill.; Francis W. Campbell, M.D., Montreal, Canada; Wm. Caniff, M.D., Toronto, Canada; Robert Brudenell Carter, Esq., F.R.C.S., London, England; J. Solis Cohen, M.D., Philadelphia; J. C. Dalton, M.D., New York; John Davis, M.D., Cincinnati, Ohio; N. S. Davis, Chicago; Richard Davy, Esq., F.R.C.S., London, England; Pierre Debaisieux, M.D., Louvain, Belgium; Stephen Dodge, M.D., Halifax, Novia Scotia; Thomas M. Drysdale, M.D., Philadelphia; J J. Dugdale, M.D., Montreal, Canada; L. A. Duhring, Philadelphia; R. J. Dunglison, Philadelphia; A. Dunlap, Springfield, Ohio; S. S. Earle, St. John, New Brunswick; Paul F. Eve, Nashville, Tenn.; S. Engelstodt, Copenhagen, Denmark; J. A. Estlander, M.D., Helsingfors, Finland; Cyrus Falconer, M.D., Hamilton, Ohio; Wm. Finlay, M.D., Edinburgh, Scotland; Austin Flint, Sr. and Jr., New York City; Anatole de Gaine, M.D., St. Petersburg, Russia; Henry Gibbons, M.D., San Francisco, Cal.; Wm. Goodell, Philadelphia; Thomas W. Gordon, M.D., Georgetown, Ohio; J. W. S. Gouley, New

York City; J. A. Grant, M.D., Ottawa, Canada; S. D. and S. W. Gross, Philadelphia; Charles Hamilton, M.D., Cornwallis, Novia Scotia; Frank H. Hamilton, New York; J. W. Hamilton, M.D., Columbus, Ohio; Charles J. Hare, M.D., London, England; B. F. Hart, M.D., Marietta, Ohio; Charles Heitzmann, New York; William H. Hingston, M.D., Montreal, Canada; Johann Hjort, M.D., Christiana, Norway; Edward M. Hodder, M.D., F.R.C.S., Toronto, Canada, John T. Hodgen, M.D., St. Louis, Mo.; T. K. Holmes, M.D., Chatham, Ontario, Canada; R. P. Howard, M.D., Montreal, Canada; John C. Hubbard, M.D., Ashtabula, Ohio; R. F. Hudson, M.D., Ballarat, Australia; Prof. Hucter, Greifswald, Germany; E. L. Keyes, New York City; H. Knapp, M.D., New York City; W. A. Konkol de Tasnopolsky, M.D., St. Petersburg, Russia; C. Lange, M.D., Copenhagen, Denmark; Jas. Leslie, M.D., Hamilton, Ontario, Canada; Joseph Lister, Edinburgh, Scotland; Wm. T. Lusk, M.D., New York City; John Duff MacDonald, M.D., Hamilton, Ontario; Marcas di J. Melcros, M.D., Havana, Cuba; H. Miyake, M.D., Tokio, Japan; A. B. Mott, New York City; H. J. Murphy, M.D., Chatham, Ontario, Canada; George Murray, M.D., New Glasgow, Novia Scotia; S. Nagajo, M.D., Tokio, Japan; Wm. Oldwright, Toronto, Canada; George A. Otis, M.D., Washington, D. C.; Wm. H. Pancoast, Philadelphia; E. R. Peasley, M.D., New York City; Wm. Pepper, M.D., Philadelphia; J. H. Pooley, M.D., Columbus, Ohio; S. S. Purple, New York; G. Rawson, M.D., Buenos Ayres, Argentine Republic; A. N. Read, M.D., Nowalk, Ohio; Alexander P. Reid, M.D., Nova Scotia, Canada; David Robertson, M.D., Milton, Ontario, Canada; James D. Robinson, M.D., Wooster, Ohio; J. W. Rosebrugh, M.D., Hamilton, Canada; Prof. Rudnew, St. Petersburg, Russia; John W. Russell, M.D., Mt. Vernon, Ohio; Frederick Semeleder, M.D., Vienna, Austria; Leopold Servais; M.D., Anvers, Belgium; Edward Shippen, U. S. Navy; David P. Smith, M.D., Springfield, Mass.; J. L. Smith, New

York City; Joseph R. Smith, U.S.A., Ft. Monroe, Va.; E. R. Squibb, M.D., Brooklyn, N. Y.; A. Stille, Philadelphia; James Thorburn, M.D., Toronto, Canada; J. M. Toner, M.D., Washington, D. C.; Edward H. Trenholme, M.D., Montreal, Canada; Joliffe Tutnell, Esq., F.R.C.S., Dublin, Ireland; Jas. Tyson, M.D., Philadelphia; William. H. Van Buren, M.D., New York City; J. J. Woodward, M.D., U.S.A., Washington, D. C.; N. Woolwerton, Hamilton, Ontario; Theo. W. Wormley, M.D., Columbus, Ohio; Fred. H. Wright, M.D., Toronto, Ontario, Canada; H. P. Yeomans, M.D., Mt. Forest, Ontario, Canada.

The following were elected officers of the International Medical Congress:

President, Samuel D. Gross, M.D., Philadelphia.

Vice-Presidents—Paul F. Eve, M.D., Tennessee; Joliffe Tufnell, Esq., F.R.C.S., Dublin; W. L. Atlee, M.D., Philadelphia; C. Lange, Copenhagen; T. G. Richardson, M.D., Louisiana; W. H. Hingston, M.D., Canada; James P. White, M.D., New York; H. Miyake, Japan; N. R. Smith, Maryland; Prof. Rudnew, Russia; J. M. Toner, District of Columbia; Professor Hulter, Greifswald, Germany; J. B. Johnson, Missouri; F. Semeleder, Vienna: Hunter McGuire, Virginia; J. Hjort, Norway; H. Gibbons, California; G. L. Collins, Rhode Island; R. F. Hudson, Australia; Pierre Debaiseux, Belgium; N. S. Davis, Chicago, Illinois; William Adams, London, England; L. A. Dugas, Georgia; A. R. Simpson, Edinburgh; J. K. Bartlett, Wisconsin.

Honorary Vice-Presidents—Surgeon-General Barnes, U. S. Army; Surgeon-General Beale, U. S. Navy.

Secretary—General J. Minis Hays, M.D., Philadelphia.

Secretaries of Meeting—William B. Atkinson, Richard J. Dunglison, R. A. Cleeman, M.D.; W. W. Keen, R. M. Bertolet, M.D.

Treasurer—Caspar Wister, M.D., Philadelphia.

The Congress was divided into nine sections, which were the following:

Medicine, Biology, Surgery, Dermatology and Syphilography, Obstetrics, Ophthalmology, Otology, Sanitary Science, Mental Diseases.

The chairmen of these were the following: Alfred Stille, M.D., Philadelphia; J. C. Dalton, M.D., New York; Professor Joseph Lister, Edinburgh; James C. White, Boston; Robert Barnes, London, England; R. Brudenell Carter, London; Clarence J. Blake, Boston; Stephen Smith, N. Y., John P. Gray, New York.

Committee on Publication—John Ashhurst, Jr., R. J. Dunglison, William Goodell, James H. Hutchinson, and Caspar Wister, all of Philadelphia.

Strange to say, laryngology and hydrotherapeutics were entirely ignored, and were not brought to the notice of the Congress.

The programme of public business was the following, as already alluded to above, at noon, September 4th:

Prayer. Address of welcome, by Professor Gross. Address on Medicine, by Austin Flint, M.D., New York.

Dr. J. J. Woodward, Surgeon U. S. Army, read a paper before the section of medicine, entitled Typho-malarial Fever; is it a special Type of Fever? The Doctor kindly gave me a copy of his paper, but I have had no time to peruse it yet. The well-known ability of the author, however, is sufficient to warrant me in recommending this monograph to those of your readers especially interested in this subject.

One of the most important subjects brought out for discussion was that on "*Antiseptic Surgery*," reporter, John T. Hodgen, St. Louis, Missouri. The different methods of treating wounds, and the experience of the most eminent surgeons, both here and abroad, was given, and the conclusions drawn therefrom ought to have been that Lister's method was, by far, the best and safest mode of all, whn carried out faithfully; but still there were some gentlemen who were not up to the times, and had not studied the germ theory, consequently can not understand the value of antiseptic treatment, and adhere to the *stage-coach* treatment instead of using steam and electricity.

Were I to enlarge upon this topic, it alone would be sufficient to fill the pages of this number of your Journal, and it may be sufficient for the present to have called the attention of your readers to the injustice done by the section to Professor Lister, who himself minutely described the why and wherefore, and still the motion prevailed that the section could not come to any definite conclusion regarding the value of the antiseptic treatment. The other sections I could not visit that day, and can therefore say nothing about the value of the work performed in them.

On Tuesday, we had an address on Hygiene and Preventive Medicine, by Henry J. Bowditch, President State Board of Health, Massachusetts. He recommends a national bureau of health, and boards of health in every city, village, and town in the United States. The suggestions were all practical, and should be indorsed by every physician in the land.

Dr. J. Lewis Smith brought up the question: Are Diphtheria and Pseudo-membranous Croup identical or distinct affections? To those who have thoroughly studied the question, its discussion was entirely superfluous. Croup is as widely different from diphtheria as scabies is from scarlatina. My views on the subject I have published in the New York Physician and Pharmacist of June and August of the present year.

I should have liked to have heard Professor Flint, Jr's., paper in the section on Biology—on the Excretory Function of the Liver, but being myself positive, from my own researches, of the correctness of the germ theory, which I published in the paper above referred to, I had to forego the pleasure of hearing Flint's no doubt excellent paper. I was overjoyed, in the section on Surgery, where Professor Lister, of Edinburgh, preached his method of treatment—alas! to many deaf ears—to hear confirmed, by so high an authority, what I have myself found to be the facts in many so-called contagious diseases, especially "*diphtheria.*"

Wednesday the 6th. The address on surgery by Paul F. Eve, of Nashville, Tenn., was listened to with marked attention. The Doctor showed that to America is due the credit of having originated some of the most difficult operations, especially in the ligation of arteries, and ovariotomy; then the use of anæsthetics must all be credited to our progress in surgery within the last century. As a historical sketch of American surgery, the address was one of the best I have ever heard.

The Treatment of Fibroid Tumors of the Uterus, by W. L. Atlee, of Philadelphia, deserves especial mention; but it would take too much space to allude even to this valuable contribution to medical literature.

The general subject of Quarantine, with particular reference to Cholera and Yellow Fever, was the title of a paper read by Dr. J. M. Woodworth, Supervising Surgeon-General, U. S. Marine Hospital service.

Disinfection in Yellow Fever, by C. B. White, New Orleans.

The address, "The Medical Staff of the United States Army, and its Scientific Work," by J. J. Woodward, Surgeon U. S. A., was delivered at Jefferson Medical College, and elicited great applause from at least eight hundred physicians present, who were delighted to listen to the able and most creditable address of the author; and every body present was charmed with the magnificent photographs of specimens, reproduced on the screen, representing the affections of the intestinal track. From the simple catarrahal inflammation to the more severe affection of diphtheritic tubercular ulcerations were admirably shown.

The Nature, Causes, and Prevention of Puerperal Fever, by Wm. T. Lusk, of New York, wherein he conclusively showed the connection of this formidable disease with germs brought into the system from without, was received with great satisfaction, and was one of the many excellent papers read before the section over which Prof Barnes, of London, presided. Incidentally the treatment of puerperal fever was touched upon, and isolation of patients so affected. The free use of disinfectants, as well as that of giving large doses of quinine and opium were very properly considered as best calculated to combat the disease; but the main remedy seems to have been lost sight of, that is, the water treatment of puerperal fever. I published, some months ago, in the Cincinnati Clinic, a number of cases treated in the lying-in ward, in Dresden, Germany, with the happiest results. No other treatment can compare with it, and I allude to it simply for the purpose of encouraging others to use it, should they meet with a similar case.

Universal Pharmacopœa, by E. R. Squibb of Brooklyn, as well as the proposition of Dr. Seguin, of this city, to introduce throughout the civilized world a uniform syitem of measures and weights—the so called metric system—should be freely discussed in all medical county and State societies, and should be adopted, after due notice of a year or two, by the American Medical Association, in the same manner as was done by Germany and Austria, where that system now prevails.

The parting address of Dr. Davis, of Chicago—who, by the by, resembles his famous namesake, Jeff. Davis, very much—has already been alluded to, as well as the touching valedictory of Prof. Gross.

It would be impossible for me to do justice to the excellent work performed by the distinguished body of physicians, numbering at least one thousand, assembled in Philadelphia; and to mention even the titles of all the papers read would require more space than you could possibly assign to it in your Journal. The ophthalmological and otological section, including our most eminent oculists, was, among others, adorned by the presence of your brother, Dr. T. R. Pooley, who will no doubt communicate to you all the papers of interest, and give you a full account of its proceedings. The labor of the dermatological section I will take the opportunity of reviewing in my next letter.

Yours truly,
Dr. Rudolf Tauszky.

Notes relative to Nocturnal Incontinence of Urine, and its Treatment.

By William A. Hammond, M.D., Professor of Diseases of the Mind and Nervous System in the University of New York, etc.*

Perhaps no one affection of childhood is attended with more inconvenience and discomfort than nocturnal enuresis, and few are so obstinate in resisting the treatment sanctioned by routine and tradition. For several years past I have given considerable attention to the subject, and with the hope that the results obtained may be of value to the profession, I am induced to communicate them in brief through the pages of this Journal.

From several concomitant circumstances, I am led to the belief that in the *beginning*, when not the result of carelessness in not taking the child from bed in order that the bladder may be properly emptied, nocturnal incontinence of urine is often either choreic or epileptic in its origin. In a small number of cases, children do not acquire the power of retaining the urine through the night; but setting these aside, as well as those in which education has not been attempted, I am satisfied of the presence of either the choreic or epileptic condition in the great majority of the remaining cases. It is not necessary that there should be other manifestations of these morbid states in order that acceptance should be accorded to this view, for it is well known that there are many forms of aborted attacks of both diseases. Nevertheless, it will often be found that there are other phenomena which serve to indicate unerringly the true state of the case. Among these may be mentioned grinding of the teeth, twitching of the muscles, rolling of the eye-balls, stupor, moaning, night terrors, etc., as well as fully developed symptoms occuring during wakefulness. But however it may originate, nocturnal incontinence of urine is very apt to become habitual even after the primary cause has disappeared, and these causes are not infrequently met with in adults in whom there appears to be during sleep an absolute insensibility to the excitation caused by repletion of the bladder. Indeed, a few cases have come under my notice in which this insensibility existed during wakefulness, there being no other abnormal phenomenon. The first intimation which the patient in such instances experiences is the contact of the warm urine with the external surface of the body, and that sensation is at once sufficient to arouse the will into the action of contracting the sphincter. There is, therefore, no absolute paralysis of the sphincter, but there is an entire loss in it of the power to be reflectively, or, more properly, especially controlled. One of these cases was that of a gentleman of social tastes whose position was rendered extremely miserable by the existence of the weakness in question. Society had closed doors for him, places of amusement were out of the question, and even business could not be conducted without the inevitable India-rubber urinal which he was obliged to wear to avoid absolute disgrace. In his early youth, this gentlemen was subject to chorea, and it was then that the incontinence of urine made its appearance. The chorea had long since disappeared, but the urinary trouble remained in spite of all means adopted for its cure.

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* This article was received too late for insertion in the proper place.

But without further discussion of the pathology of the affection, I pass at once to the practical points of its treatment:

From whatever cause induced, nocturnal incontinence of urine consists in an excessively irritable condition of the sphincter of the bladder. The usual relation existing between the two spinal functions, the one contracting the sphincter and the other relaxing it, is disturbed, and the latter preponderates. There is accordingly an excessive degree of excitability in the direction of relaxation, and the immediate seat of the cause is doubtless to be found in that part of the spinal cord in nervous relation with the part in question. It is to the spinal cord, therefore, that our therapeutical measures should be directed, and these should consist in the employment of those means which are known to lessen the excitability of this nerve centre.

I have found the following plan of treatment so efficacious that, though there are others which are at times followed by success, I have for several years past adopted it exclusively:

1. Supposing the patient, as is generally the case, to be a child, the bladder should be emptied on going to bed, and then two or three times afterwards the patient should be taken up and again made to urinate.

2. Sleeping on the back should be prevented. The prone position is one which, of all others, increases the amount of blood in the cord, and hence augments its irritability.

3. The following prescription should be given for several months—three or four at least—if stopped sooner the affection is liable to return: ℞. Zinci bromidi, ʒss. Ergotae ext. fl., ʒiv. M. ft. sol. Dose, ten drops three times a day, increased five drops every month. Thus for the first month ten drops are taken three times a day; for the second month, fifteen drops three times a day; for the third, twenty drops, and so on. It is preferably administered after meals, being less apt then to excite nausea or vomiting. Should

either of those symptoms prove troublesome, the ensuing two or three doses may be somewhat smaller.

Children of from four to twelve years of age can take the foregoing quantities without disturbance of the general health, and even for adults it is not often necessary to increase them except in the way of augmenting the doses by five drops every two weeks instead of every month.

It will almost invariably be found that by these means the incontinence of urine is cured and the general health of the patient much improved, but occasionally a case is met with in which the bromide of zinc is not well tolerated. It proves irritating to the stomach, and induces a peculiar cathaxia, characterized by emaciation, paleness of the complexion, a dull expression of the face, dryness and roughness of the skin, obstinate constipation, etc. In such instances the bromide of iron may be substituted for the zinc compound with advantage. It should be given in the form of a syrup (ferri bromidi, ʒi., syrupus simplicis, ʒvi.), in doses beginning with five grains three times a day, gradually increased to fifteen or twenty. A teaspoonful of the syrup, made according to the above formula, contains about ten grains of the bromide of iron. The dose, therefore, to start with, is half a teaspoonful three times a day, increased gradually, till at the end of three or four months the patient is taking a teaspoonful and a half or two teaspoonfuls of the medicine. With each dose of the bromide of iron the fluid extract of ergot should be given separately, and like it should be gradually increased from ten drops three times a day to a drachm as often. The two medicines can not be kept mixed together for any length of time without the bromide of iron being decomposed and the ergot also injured.

In the nocturnal incontinence of urine occurring in adults the principles of treatment should be similar, but instead of the bromide of zinc the bromide of either potassium, sodium, or calcium should be employed, and it is not necessary to give the remedy in augmenting doses. One ounce of either of the compounds mentioned should be dissolved in four fluid ounces of the fluid extract of ergot, and of the mixture a teaspoonful should be given thrice daily. In extreme cases blisters to the skin are valuable adjuncts, and in several recent instances I have made successful use of the actual cautery to the dorso-lumbar region. As in children, the treatment must be directed to the emptying of the bladder late at night before retiring to bed, the prone position must as scrupulously be avoided, and the remedies should be continued for several months.

It must be clearly understood that these notes do not refer to the incontinence of urine which results from paralysis of the sphincter of the bladder, so frequent a phenomenon in certain organic diseases of the spinal cord. In such cases, though ergot is, to a certain extent, useful, the main reliance is to be placed upon the preparations of belladonna.

There is also a hysterical incontinence of urine, which, though not embraced within the present category, I may say yields readily to the bromides and ergot as recommended above. If in such cases there is reason to believe that the sphincter is paralyzed (and the fact may be definitely known by the inability of the will to constrict the sphincter), a few drops of the tincture of belladonna—ten or twelve, for instance—may be administered in conjunction with the other remedies, and counter-irritation may be advantageously applied to the spine.

EDITORIAL.

Among all the meetings and celebrations called forth by this Centennial year, none has been so interesting to us, as medical men, as the International Medical Congress, held during the first week of September, in Philadelphia; and no where, not even in the great exposition itself, has there been presented better evidence of our rapid progress during the first century of independent national existence. No where can there be found a record of which we have better reason to be proud.

The Congress was a great success, an occasion never to be forgotten by any who participated in it. In its gathering of medical men from various and distant fields of labor, in its opportunities for seeing those whose names are associated with the very life of contemporaneous medical science, in its social reunions, and in the actual work presented, it was delightful and all that could have been expected. One special feature, most interesting to us as Americans, was the Centennial Addresses on the various branches of medicine, gathering up the work of the century, preserving it for future reference as a precious memorial of the past, and saving much labor to future students. All the subjects were well presented, and one feels little like making distinctions or comparisons; but we can not refrain from saying that among the very best of these addresses was that on the progress of chemistry and toxicology, by our fellow-townsman and colleague, Prof. T. G. Wormley, of Starling Medical College.

When we consider what was the condition of these Colonies when they, by a solemn declaration of independence, severed the tie that bound them to the mother country, and started alone and almost unaided as a nation, we must confess to both wonder and pride at the progress made in every department of medical science. Without institutions for medical instruction, with but few practitioners, utterly destitute of a medical literature, we have, in the short space of a century, created on this western hemisphere monuments of medical science and skill that any people might be proud of, and probably added as much to the practical resources of the art as any other part of the world during the same time.

There were not as many foreign delegates at the Congress as we had hoped and expected to see, but there was a goodly number, and most of them men truly representative in their several departments.

The names of Barnes, Adams, Carter, Lister, and Tuffnell are sufficient evidence that though Great Britain might have sent more, she could not have sent better men; and if these gentlemen were gently bored by the Centennial and strictly American feature of the occasion, they were far too kindly and polite to show the least sign of it. And we think we may venture the belief that they will place a higher estimate than before on American medicine and surgery.

One effect that we doubt not was produced in the minds of many from distant and isolated fields of practice was pleasure and surprise at finding many of those things they had found out for themselves, and hardly knew the worth of, recognized and valued by the leaders of the profession. And even if it gives rise to a little fluttering of vanity, it does a man no harm to find that his voice and opinion are received with respect and attention in such a body. He goes back to his work not without consciousness enough of shortcomings, but with confidence and new heart.

The proceedings are sketched on another page by our New York correspondent, and while we commend his letter as interesting, we wish distinctly to disavow any indorsement of the opinions to which he so frankly commits himself. Good work was done in all the sections, of which, however, it seems to us there was at least one too many—that of otology. Why this was not made, as it practically is, an appendage of ophthalmology, we are at a loss to understand. Is it that our ear surgeons—or otologists, as they are now called—are getting proud?

We stepped into the ophthalmic section one afternoon, and heard a distinguished ophthalmologist describing the best way for the general practitioner to treat certain eye diseases—not the best way to treat them, but the best way for the general practitioner to do it. Is not this a little too much? Has not the general practitioner any rights which a specialist is bound to respect? May we not meekly and humbly beg of our distinguished friends when they give us instruction on any subject to give us the best they have, and not treat us as though our mission in life was simply to mistreat or half-treat our cases, and so provide material for specialists?

We understand that the dermatologists had a pretty lively time, debating whether certain skin diseases were of local or constitutional origin, Dr. L. D. Bulkley, of New York, standing almost alone on one side. He battled bravely, however, true to the ancient proverb, which may be freely rendered, "Skin for skin; yea, all that a dermatologist hath will he give for his theory." Nothing but rumors, faint and indistinct, reached us of what was going on in the other halls, and we spent all our own time in the surgical section. Here much was to be heard, and he must have been a very wise man indeed who did not learn something. Perhaps the great event here was the privilege of listening to Prof. Lister for three hours, on his favorite subject of antiseptic surgery. He convinced his audience of one thing, that whether they believed all he had to say on the subject or not, he himself believed it most thoroughly and devoutly. For our part, we do not feel able to decide the question, but think that much good has already been done, and more will be done, by calling attention anew to the treatment of wounds, and the necessity of cleanliness and attention to details.

Dr. Van Buren gave us a very good résumé of the present state of knowledge on aneurism, particularly as to its treatment. In the course of his remarks he suggested the control of hæmorrhage from branches of the iliac by pressure exercised on these arteries by the hand in the rectum. This possible use of the rectum had, however, been already suggested in the American Journal of the Medical Sciences for January, 1873, by Dr. Woodbury, then house surgeon in the Pennsylvania Hospital. After Dr. Van Buren's paper we were treated to some admirable remarks on the medical and postural treatment of aneurism by Mr. Tuffnel, of Dublin.

The field day for debate in this section, however, was when Dr. Sayre's paper on hip-joint disease was discussed. The Doctor's statement that this affection was generally independent of the so-called scrofulous condition, and due to traumatic causes, awoke an amount of opposition which was surprising to us. Able men were arrayed on either side, but we thought that the weight of argument was on Dr. Sayre's side.

The courtesy, attention, and good management of our Philadelphia brethren were beyond all feeble praise of ours, and deserve the thanks of the whole profession.

REVIEWS.

Archives of Clinical Surgery. A Monthly Periodical Devoted to Surgery in all its Special Departments. Edited by EDWARD J. BERMINGHAM, M.D. New York: Routledge & Co., 102 West Forty-ninth street. Vol. I. Nos. 1, 2, and 3.

Several of the more important specialties are represented, and ably, too, in our American periodical literature. We have the Archives of Ophthalmology, the American Journal of Obstetrics, several journals devoted to mental and nervous diseases, one to dermatology, and so on, and now we are delighted to see one devoted to surgery. When we first recieved the prospectus of this new journal, we were ready to exclaim, What! another medical journal? What can be the need or use of that? But now we are inclined to think that the first exclamation of impatience was unwise and wrong, and are glad that we have waited until these three numbers have made their appearance before expressing any opinion on the subject.

Now we can deliberately say that the talented and able editor has already fully justified his somewhat daring enterprise, and broken ground successfully in this new department of journalistic effort. If he keeps on as he has begun, it will soon become *the* journal that no surgeon can afford to be without.

It is very handsomely printed on excellent paper, and that no trouble or expense is to be spared in its make up is shown by the number of illustrations that have already adorned its pages. The names of those contributors who have already furnished articles are well known wherever surgery or science is cultivated; and the long list of prominent men engaged as writers for its pages, as given on the second page of the cover, is a guarantee that this high character is to be fully maintained.

The September number contains an article on the Transmission of Syphilis, by Dr. R. W. Taylor, of New York, whose recent labors in the department of syphilology have proved him to be an excellent and painstaking investigator, and earned for him a respectful and ready hearing for any thing he may have to say. Next comes a case of Aneurism of the Aorta, resembling Aneurism of the Innominata, by Dr. S. Fleet Spier, of Brooklyn, New York, which will be read with interest, both on account of the anomalous features of the case itself, and the illustration it affords of the excellence of that gentleman's artery constrictor, an instrument which we believe is destined to grow in favor with practical surgeons.

Article three is Constriction of the Brachial Artery, following "Wound of the Palmar Arch, by Dr. N. S. Robbins, of Brooklyn," and the last article is entitled Ligation of both Femoral Arteries, for Femoral Aneurism on one side and Popliteal Aneurism on the other, by Erskine Mason, M.D., of New York.

It is a little singular that we should thus have three articles in one number on the surgery of the arteries, and we must say that we have seldom read three of a more instructive character. In the hospital records which follow we have also two cases of ligation of important arteries. These hospital records do not strike us as the best feature of the journal. They are too short and fragmentary, it seems to us, to be of much use or profit. We have given this rather unusual space to our new "exchange" because it is rather a startling and precarious venture, and because its excellence deserves congratulation and recognition. We wish it every success, and hope the surgeons of our whole country will make it the medium of communicating their experiences and observations.

Transactions of the Medical Association of the State of Missouri, at its Tenth Annual Session. St. Louis, April, 1876.

This handsome pamphlet of seventy-nine pages, though good as far as it goes, is rather a meagre result of a year's work in the great State of Missouri, and were we disposed to attach any value to this kind of literature we should be ready to deplore the fact. But we really think that the annual reports of the various State societies, with their limited local circulation, are only so many sepulchers for papers and ideas, and as much a detriment as an advantage to the cause of medical progress.

In the transactions before us, after the usual report of the Society's proceedings, we have, first, a paper by Dr. John T. Hodgen, of St. Louis, on "Nerve Section for Neuralgia;" second, "Reflex Induration of the Penis." This is a capital practical paper, and ought to have appeared in some good journal. The next article, on "Blepharospasm," by Dr. Wm. Dickinson, of St. Louis, is interesting; especially so is the case which is related, in which this annoying form of spasm seemed to depend on some central lesion of the nervous system, and resisted all methods of treatment, including canthoplasty and division of the supra-orbital nerve. The patient died of what appeared to be a general paralysis.

This is followed by an article on Torticollis, by Dr. A. J. Steele, of St. Louis, which advocates sound principles in the treatment of this troublesome affection, and describes and figuers a form of elastic extension well adapted for the purpose in view. Next we have two reports on the Progress of Surgery, by Dr. E. H. Gregory, of St. Louis, and Dr. J. W. Trader, of Sedalia, the latter on the use of warm water in severe injuries, which is a good practical paper.

The original articles are concluded by a report of a case of Exsection of the Knee, by Dr. A. P. Lankford, of St. Louis, which was remarkably successful, and is a valuable contribution to the statistics of an operation that is still, to a certain extent, on trial, but which many surgeons think has not yet had full justice done it, particularly in this country.

On the whole, this little volume of transactions is of a higher character than many similar productions which we receive, and the State of Missouri is to be congratulated on the ability of its medical men, especially its surgeons. It is noticeable that most of the articles emanate from St. Louis, which does not speak so well for the country practitioners of the State. We believe, however, that this is not so much from any lack of ability as from a diffidence in trusting themselves to print, which seems to be characteristic of physicians removed from our great cities, and which, no doubt, deprives us of much that is valuable.

Transactions of the Medical Society of the District of Columbia. Vol. III., No. 2.

Proceedings of the Medical Society of the County of Kings, Brooklyn, New York. Vol. I., No. 7.

These two pamphlets assure us that there are at least two local medical societies where good work is done, and the members are active and enlightened promoters of medical science. But their very excellence makes us regret their existence, for we can not see any reason why so much good material should be withheld from some medical journal where it would have an extended circulation and do good, and be buried in these pamphlets which, at best, reach a very limited number of readers. It does seem to us that such unnecessary multiplying of separate publications, while the regular journals are but poorly patronized, is a grave mistake.

In the transactions of the Medical Society of the District of Columbia there is a report of a case of extraordinary bony formation in the dura mater. The patient, an Englishman, aged 62, died from intracranial hæmorrhage, the result of severe blows upon the head, and the osseous degeneration of the dura mater was discovered at the autopsy, and is described by the reporter, Dr. J. F. Thompson, as follows: "The deposit was between the dura mater and the arachnoid; and there were large plates corresponding with the two parietal bones, the halves of the frontal, and the occipital. The parietal plates were upon either side of the sagittal suture, and were four inches in length, and two wide, posteriorly. The occipital plates were smaller, but the frontal were quite large, the left measuring two and one-half inches in diameter. There were also smaller plates laterally for the squamous portion of the temporal. These plates were all thick, but there was no diploic substance; this was also very deficient in the skull. There was considerable deposit, also, in the falx cerebri. It was wanting immediately beneath the sutures." The author remarks further: "The ossification in this case was greater than I have ever seen, and I doubt if there is another such upon record." We are not aware of any recorded case that will equal this in extent.

The proceedings of the Medical Society of Kings contains a number of very interesting articles, but the one which mainly attracted our attention is the last, on The Pollen of the Rag Weed (Ambrosia Artemisiæ folia), as the Cause of the Hay Fever. Whether the cause of hay fever, in general, has been found, can not yet be judged, but it seems nearly certain that its cause in at least one case, perhaps in many others, has been discovered in the pollen of this very common plant. It is a subject of great interest, and we hope that further and extended observations will soon be made and recorded. P.

A Manual of Percussion and Auscultation of the Physical Diagnosis of Diseases of the Lungs and Heart, and of Thoracic Aneurism. By Austin Flint, M.D., etc., etc. Philadelphia: Henry C. Lea. 1876.

The first chapter of this work is given to the consideration of the definition of physical diagnosis, its significance and value; the anatomy and physiology of the chest; the importance of thorough knowledge of these in order that one may be able to comprehend and appreciate the deviations from the normal condition which are observed in disease; the physical conditions incident to the different diseases of the respiratory organs, their importance, and their original significance; followed by a summary, given in order to impress the several morbid conditions on the mind of the student.

We are next taught the distinctive characters of healthy and morbid sounds, in which much stress is laid upon the intensity, pitch, duration, and quality of the sounds elicited by examination.

The method of determining diseased states by the study of the distinctive characters of sounds is named the analytical method, in contradistinction to the method of deducing the physical conditions incident to the diseases from the sounds alone.

Some remarks on the significance of the signs, as regards the physical conditions which they severally represent, followed by the regional division of the chest, closes this chapter.

Chapter second treats of percussion in health; chapter third, of percussion in disease; chapter fourth, of auscultation in health; chapter fifth, of auscultation in disease; chapter sixth is given to the consideration of the physical diagnosis of the diseases of the respiratory system; chapter seventh, to the physical conditions of the heart, in health and disease; chapter eighth, the physical diagnosis of diseases of the heart; and chapter ninth, the diagnosis of thoracic aneurism.

Like all the works of its distinguished author, this manual is characterized by the absence of useless verbiage, by clearness, and practical sense.

The author is disposed to be a little satirical when he advises, in the first chapter, that practitioners must recollect that in order to understand the full value of physical signs they must have a knowledge of the anatomy and physiology of the organs of the chest. He claims priority in the use of the pitch, quality, etc., of sound as a more perfect mode of ascertaining the full meaning of signs, and quotes a paper read by him before the American Medical Association, in 1854, in proof of his claim. We supposed this matter to be understood from the time of Læennea until the publication of Professor Loomis's book, in which we saw, for the first time, stress laid upon the several properties of sound, and the method set forth as superior, and as a novelty.

No matter to whom the honor of the discovery may be due, the idea is good, and can not fail to be useful to, and to attract the attention of, the profession.

Dr. Flint's regional division of the chest is, we think, preferable to the divisions made by some other writers, because less complex. It does not differ materially from that of Bennet, published twenty-five years ago.

It is a matter of regret that the author confined himself to such narrow limits. It would have been easy for him to have given to the profession a complete work on the subject of physical diagnosis as a complement to his admirable book on practice.

The book is well printed and handsomely bound. L.

Atlas of Skin Diseases. By LOUIS A. DUHRING, M.D. Part I. Philadelphia: J. B. Lippincott & Co. 1876.

It is only a few days ago that we heard a physician of far more than ordinary intelligence and ability declare that he knew nothing about skin diseases; and what he confessed with regard to himself there is great reason to believe is equally, if not much more, true of multitudes of others, indeed of the great mass of physicians.

These affections are generally looked upon in a crude, uncertain way as some sort of eruption or breaking out in the skin, it makes no difference what, and prescribed for quite empirically. The physician may know that this large class of diseases has been studied and classified, and that they have had a variety of names given to them, but seems to think that any thing like an accurate discrimination of them is a matter of great difficulty, not to be expected of the general practitioner. But lurking at the bottom of this ignorance and indifference, there is no doubt a belief that it does not matter much to be particular about them, that nothing practical is to be gained by it.

As long as this condition of things exists, there is no need of any excuse or apology for the multiplication of books on the subject. And, furthermore, we quite agree with Dr. Duhring that mere text-books and descriptions will not suffice, but that for those who can not have the advantage of actual clinical demonstrations good plates are indispensable. Indeed, there is no branch of medical literature where they are so absolutely necessary as here. Inasmuch, therefore, as there has been no previous attempt of this kind in this country, except some photographs published in Boston—and these lacked the essential element of color—Dr. Duhring deserves our thanks for having made the attempt, and we hope most sincerely his work will meet with ample encouragement.

His work, moreover, deserves our praise for the intrinsic excellence displayed in this first specimen of it, which his well known ability and the character of his publishers assure us will be maintained throughout, and then we shall have an atlas of skin diseases, national in character, of which we may justly be proud.

This first part contains four large quarto-sized colored plates of the following diseases, viz.: Eczema Erythematosum, Psoriasis, Lupus Erythematosus, and Syphiloderma Pustulosum. Of these, while they are all excellent, we think the two last are the best.

The portrait of Eczema, while it displays admirably the general characteristics of the disease, does not bring out the details with sufficient plainness; the plate of Psoriasis, it seems to us, makes the patches appear too raised and prominent. The last two, especially the one of pustular Syphiloderma, are every way excellent, the latter being as good a representation as any we know of. We can not too strongly recommend every physician to procure this work, which is to be completed in ten or twelve parts, and familiarize himself with these graphic representations of skin diseases.

The accompanying text is worthy of the reputation already acquired by the author, and more than this need not be said to commend it to all.

The price of each part is $2.50, which will be money well spent. P.

A Treatise on the Science and Practice of Midwifery. By W. S. PLAYFAIR, M.D., F.R.C.P., etc. Philadelphia: Henry C. Lea. 1876.

Most works on obstetrics, even those of modern date, are of so nearly stereotyped a character that we have no difficulty in recommending one to a student. One is as good as another, is the common answer to the inquiry concerning their merits.

From the time of Ramsbotham and Cazeaux until within recent periods very little advance was made in this department of the science of medicine. True, we had some innovators, as Simpson, but they confined themselves mainly to the consideration of a few things, one or two operations, the treatment of placenta previa, etc., but made no effort to change the old rules with regard to labor and its management.

Two books have recently appeared in which there are decided departures from the traditionary paths. These are the works of Lieshman and Playfair, and perhaps we may include Schroeder's excellent book, but the last named has decidedly the flavor of orthodoxy.

Dr. Playfair begins his preface by stating that "in no department has there been more progress in late years than in midwifery, and none in which modern views of practice differ more widely from those of only a short time ago. His object has been to place in the hands of his readers an epitome of the science and practice of midwifery which embodies all the recent advances. He is aware that on certain points he has recommended practice which not long ago would have been considered heterodox in the extreme, and which even now will not meet with general approval."

He proceeds to give after the usual plan the anatomy of the pelvis and generative organs as minutely as it is laid down in any of the textbooks of descriptive anatomy; in connection with which he describes "the movements of the pelvic joints," which he asserts are so considerable, even in the male, as to be observable in certain postures and during certain acts, and in the female more decided during labor, and are facilitated by "the changes which are known to take place in the pelvic articulations during pregnancy." Notwithstanding what is further stated, that "the ligaments and cartilages become swollen and softened, and the synovial membranes existing between the articulating become greatly augmented in size and distended with fluid, these changes act by forcing the bones apart, as the swelling of a sponge placed between them might do after it had imbibed moisture," we feel a little doubt in accepting the belief that these movements have much to do in facilitating labor. The movements of these joints are so slight, at least in the great majority of women, as to be of little importance in that process. It is difficult in the majority of cases to detect any movement whatever; and we feel inclined to question the author's assertion concerning the changes which occur in the joints of the pelvis. It would be a great comfort to be able to agree with him on this point, for we should be relieved of a great deal of uneasiness concerning cases in which there is diminution of the normal dimensions of the pelvis. A slight degree of expansion of these joints in many such cases would be sufficient to prevent dystocia. Does it ever occur? We have felt the coccyx move back and forth during labor-pains, but may be permitted to doubt if the other joints move to a perceptible extent.

Ovulation and menstruation are well described, and there are some statistics on the influence of climate, race, and other circumstances on the establishment of menstruation, which are of great interest.

There are some very sensible remarks on the cessation of menstruation at the close of this chapter.

Part II., on Pregnancy, begins with a chapter on conception and generation, in which there are the usual ambiguous explanations of the mode by which the semen is brought into contact with the ovum.

The remainder of the chapter is interesting, and quite even with the times, but one could wish some things in it were a little more conclusive; as, for example, the explanation of the formation of the decidua vera, which, notwithstanding the opinion of Coste, which is quoted somewhat at length, is not what we may hope to have in a future edition.

In the chapter on the Anatomy and Physiology of the Fœtus the author, after quoting Sir James Simpson's well-known paper concerning the size of the fœtal head, says, "It is probable that race and other conditions, such as civilization and intellectual culture, have considerable influence on the size of the fœtal skull," but that the data upon which this opinion is founded are not sufficiently positive. We think the fact, which is pretty well established, that highly nurtured and intellectually cultivated people have improved in physical, as well as mental, development, ought to relieve us of all uneasiness on this score, for if the head of the fœtus is increased, so also the dimensions of the pelvis seem to be increased. It is a fact which can not be questioned, that the largest number of cases of dystocia from disproportion between the head of the child and the pelvis of the mother met with in this country are among the classes in whom there is the least intellectual culture.

At page 125 attention is called to the remarkable changes which occur in the blood during pregnancy, and due importance attached thereto. A careful study of these and a recollection of what is obtained will materially influence the management of cases in which untoward symptoms appear.

The importance of the signs of pregnancy, and the fallacies connected therewith, are considered at length. The reader is duly warned of the risks to the patient and the physician in the expression of hastily formed opinions by the latter, in cases in which the signs are the least degree ambiguous.

After mention of the attempts which have been made by different writers, including Montgomery, to classify the signs of pregnancy, the author says: "The simplest way of studying the subject, however, is the one which is now commonly adopted, of considering the signs of pregnancy in the order in which they occur, and attaching to each an estimate of its diagnostic value."

At page 137 it is stated the pulsations of the heart in male children during intra-uterine life are 124 per minute, as against 144 per minute of the female; and so uniformly is this the case, that the difference in the frequency of the pulsations has been used by Steinbach and others as a mode of determining the sex of the child before birth.

This is decidedly one of the late advances in the science of obstetrics, and when taken in connection with the mode of ascertaining the position of the child in utero by palpation, it would seem that there is not much more to be known concerning the fœtus, except the precise mode in which the ovum becomes fertilized.

The differential diagnosis of pregnancy is carefully elaborated and its importance pointed out. With regard to the vexed question of protracted gestation, after quoting the laws of France, Prussia, England, and those of some of the United States, and the remarkable cases of Simpson and others, the author concludes by saying: "On the whole, it would be hardly safe to conclude that pregnancy can go more than three or four weeks beyond the average time. This conclusion is justified by the cases we possess in which pregnancy followed a single coitus, the longest of which was 295 days." Which leaves this question just where it was before, to vex and worry the practitioner and the woman. L.

A Manual of Midwifery. By ALFRED MEADOWS, M.D., F.R.C.P., etc. Second American from the third London edition. Revised and enlarged, with one hundred and forty-five illustrations. Philadelphia: Lindsay & Blakiston. 1876.

Whatever may have been the literary activity recently displayed in the other departments of medical science, no one can complain that the obstetricians have not fairly kept pace with it, both in the number and excellence of the works they have given to the profession.

Within a comparatively short time we have had two editions of Lieshman's masterly treatise, a translation of Schrœder's wonderfully condensed manual, a true *multum in parvo.* Playfair's System of Midwifery, Robert's Students' Guide to the Practice of Midwifery, and last, though not least, a second American edition of Meadows's excellent manual. We mean no disrespect to the other works enumerated, all of which possess points of excellence, some of them of very great excellence, when we deliberately say that we think the one which is the subject of this notice is the best of them all for the use of medical students. The specialist, and the obstetrical expert, will hardly find that discussion of various subjects, that amplification of his favorite branch, which he needs and delights in, but we venture to say he will find little or nothing to dissent from, and much to win his hearty approbation. In our day obstetrics, together with all the other branches of medical science, has grown to such proportions in the hands of its multitude of zealous cultivators that no one book of moderate size can present it as a whole, except in outline, within moderate limits. To give such an outline, which shall leave out nothing of importance, which shall give each part its due proportion, which shall lay sound and solid foundations for future study, and awaken a desire for future investigation and fuller research, is no mean task. It is one which requires excellence of an uncommon order, real love for and thorough knowledge of the subject, and yet a literary self-control that can subordinate every thing else to the accomplishment of a well-defined object.

This difficult task Dr. Meadows has accomplished to admiration. His book must necessarily grow in favor with students and teachers, and we think it will be long before it will be displaced for the specific purpose which it aims to fulfill. Its modest, well-written preface, copious and helpful index and table of contents, well-selected and really illustrative wood-cuts, all show in advance the hand of a workman "who needeth not to be ashamed." Part I., on the Anatomy and Physiology of the Organs of *Gestation* (though why the old time term organs of *generation* is thus changed we fail to understand), is excellent and well-written throughout. It is divided into four chapters: First, the Pelvis; second, Female Organs of Generation; third, Conception and Gestation; fourth, Development of the Gravid Uterus.

We do not know any where a better summary of the present state of knowledge on all these subjects. It is a model of condensation; scarcely a superfluous word is used, and yet it is entirely free from obscurity or ambiguity. It is material for the student to *learn*, not simply to read, and only when he has learned and mastered it is he fitted to read obstetrics with profit.

Discussion of mooted or recently settled points is properly omitted; the results of investigation, where results have been reached, are simply and tersely stated. For example, in dealing with the measurement of the pelvis, there is no parade of numerous authorities, but the broad, general averages are given, which are exact enough for all practical purposes, and probably as exact as they ever will be. Similarly the mistaken notion of the curve of Carus is simply stated and corrected, without puzzling the student with a long argument whose pros and cons would only perplex and confuse him. In the description of the corpus luteum and the development of the ovum, we are pleased to see such free use made of the figures and descriptions of our distinguished countryman, Prof. J. C. Dalton, who has done so much to elucidate these subjects, more than any body else, we believe—and we speak from personal experience and grateful recollection—to make them understood by the medical student. To meet with some of these drawings, once so familiar to us on the blackboard in the well-remembered lecture-room, in the pages of an English work on midwifery, gave us a thrill of genuine pleasure.

Part II., Pregnancy, is divided into nine chapters, as follows: 1st. Signs and Symptoms of Pregnancy. 2d. Duration of Pregnancy. 3d. Signs of the Death of the Fœtus in Utero. 4th. Mole Pregnancy. 5th. Spurious Pregnancy. 6th. Extra-Uterine Gestation. 7th. Superfœtation. 8th. Displacements of the Gravid Uterus. 9th. Premature Expulsion of the Embryo.

The chapter on the signs and symptoms of pregnancy opens with the following sensible remarks:

"It may perhaps be said, without exaggeration, that there is hardly a branch of obstetric medicine which at times presents greater difficulties or is attended with more important consequences than the diagnosis of pregnancy. Its non-recognition may not only lead to results disastrous alike to mother and child, but a medical man may by his neglect become the unconscious instrument of a crime from which his moral nature shrinks with horror. On the other hand, in the case of the unmarried, he may, if mistaken in his diagnosis, cast a slur upon a spotless character, and by his dictum destroy a reputation upon which the maintenance of life depends.

"Little need be said, then, to prove how necessary it is to have a correct appreciation of the various signs of pregnancy; and hence the eagerness with which men have from time to time endeavored to discover some new and more unfailing sign of this condition. It must be admitted, however, that of late years no great advance has been made in this direction; and though many suggestions, of doubtful value in themselves, have been offered, we still in the main have to trust to a few signs, the value of which has been confirmed by years of experience. There have been various ways of considering this subject by variously arranging the symptoms under certain classes; but without stopping to discuss their advantages or otherwise, it seems to me that the most natural and convenient method will be to state briefly *what phenomena may be looked for with each succeeding month*, instead of considering each separate symptom as it occurs and is modified during the whole course of pregnancy.

"This arrangement will, I think, be of no small convenience to the student, and at the same time it will be easy of reference for the practitioner. As may be readily imagined, it is in the *early weeks* of pregnancy that the greatest difficulty of forming a correct opinion presents itself. In some cases there is absolutely nothing to excite suspicion of such a condition, and the patient may only become aware of it when pregnancy has far advanced. This is especially apt to occur during lactation, and I have known abortion happen many times under these circumstances, caused probably by the sympathetic relations between the breast and the uterus. In other instances, no sooner has conception taken place than, sometimes even within a few hours, symptoms begin which at once attract attention, and force upon the patient's mind a conviction of her situation. Between these two extremes there is every shade of variety, from the smallest, almost imperceptible change, to a general disturbance of almost every function."

This whole chapter is admirable for its clearness and simplicity, and while it certainly contributes nothing to relieve the subject of its inherent difficulties, it places it in a very clear and practical light.

Referring to the well-known researches of Dr. Isaac E. Taylor, of New York, on the shortening of the cervix uteri during pregnancy, the following sentence strikes one as irresistibly comical: "Dr. Taylor, Professor of Obstetrics in America, denies that the cervix ever shortens or becomes obliterated during pregnancy." This is delightful; and the designation "Professor of Obstetrics in America" effectually prevents any possibility of mistake as to the person meant.

There is one sign of pregnancy we were disappointed in not seeing any detailed reference to, as it may, if it proves trustworthy, be of great utility in difficult and doubtful cases. We refer to the rise in the uterine temperature, as measured by the thermometer, said by some to take place.

Among the symptoms, or secondary indications, of pregnancy, there is one that occurs occasionally which our author does not refer to, and which we have never seen alluded to any where, although we have known of its occurrence—that is, an increase of the amorous propensity during this condition.

The chapter on the duration of pregnancy is short, and as unsatisfactory as all such chapters are, and, probably, always will be. That the duration of pregnancy may be prolonged very considerably, no one, we presume, now-a-days doubts; but as to the causes of such prolongation of a process ordinarily so regular, no body has made us any the wiser. And yet it is a subject we should all of us like to know all about, for it often assumes great medico-legal importance. In this chapter our author touches upon that other vexed question, as to the cause of labor, and leaves it just where he found it, notwithstanding the numerous explanations that have been given. The old one that attributes it to the will of God is as good as any. This chapter ends with a table, or ready reckoner, for determining the probable date of confinement in any given case, which will be found very useful.

Chapter third is on the signs of the death of the fœtus in utero. It presents the subject very fairly, and gives good, reliable signs of this occurrence, without perplexing the reader with exceptions, which, after all, are rare, and could never be made any easier to determine by any amount of description. The next chapter, on mole pregnancy, is taken up mainly with the consideration of the so-called hydatiform degeneration of the chorion. The rule laid down that, where the state of the patient does not demand interference, the course of events should be left to nature's determination, but where a continuous hæmhorrhage or other conditions threatens the patient's life, the uterus should be emptied at all hazards, seems to us a sound one. The cases where with the hydatid mole there exists a living twin fœtus whose existence might be compromised must be comparatively rare; and even if it were so, and we knew it, the safety of the mother is surely the main point, and the true guide for practice.

Chapter fifth, on spurious pregnancy, is a very short one, and yet long enough for the consideration of this curious subject in such a work as the one before us. To be fairly warned, and for really doubtful cases, armed with chloroform is all that is needed in these cases. A superficial examiner may be misled, but a thorough and careful one very seldom, if ever. That there is no end to the vagaries of women on such subjects, we have seen a striking illustration within a year. A woman presented herself who firmly believed that she was the subject of an extra uterine pregnancy. She had been told so by one physician, and she was certain she felt the movements of the child. She had had some localized peritonitis, from which adhesions had resulted, and no doubt the localized movements of intestinal flatus gave rise to the fallacious sensations. But explanation and argument were thrown away upon her—she persisted in her strange delusion, for which there was not one iota of substantial reason. Probably time has ere this dissipated her error.

Women who present the ordinary phenomena of spurious pregnancy are quite often those who strongly desire to have a child, but why a woman should want to have extra uterine pregnancy is more than we can tell.

Chapter sixth takes up the subject of extra uterine gestation, which is divided into four varieties—Ovarian, Tubarian (why is this any better than Tubal?), Interstitial, and Ventral.

Of course the chapter does not pretend to any thing like a full presentation of this subject, which would obviously be out of place in a work like the present. But short as it necessarily is, we were rather disappointed to find no allusion to Dr. Parry's recent work on the subject, or to Dr. Thomas's important and interesting operation through the vaginal roof in such a case, an operation, like some others by that celebrated obstetrician, as ingenious in conception and bold in execution as it is instructive and progressive in its bearing upon future teaching and practice. In chapter seventh the perplexing subject of superfœtation is probably as satisfactorily treated as it is any where or can be in the present state of our knowledge.

Chapter eighth, on displacements of the gravid uterus, and chapter ninth, on premature expulsion of the embryo, conclude the second part of the work, and are both excellent. They have evidently been written with that full knowledge of the subject which comes from a combination of thorough study and large opportunities for personal experience and observation.

Part III., Natural Parturition, includes three chapters, on Classification of Labors and Mechanism of Parturition,Phenomena of Natural Labor, and Management of Natural Labor. In it we find nothing to call for remark, and heartily commend it as an admirable guide, both as to what not to do, as to what is to be done. And those who have had much to do with students and young doctors will readily concede that this is saying a good deal.

Part IV., on Obstetric Operation, has eight chapters, the subjects of which are divided as follows: 1. The Vectis. 2. The Forceps. 3. Induction of Premature Labor. 4. Turning. 5. The Cæsarian Section. 6. The Sigaultean Operation. 7. Craniotomy. 8. Cephalotripsy. It seems a little remarkable that so full a consideration of obstetric operations as to include the Sigaultean operation should make no mention of gastro-elytrotomy, advocated in certain cases by Thomas, and recently successfully performed by Dr. Skene, of Brooklyn. It is an old proposition revived, and just at present no one can foretell its future, but it certainly presents such claims as to demand the thoughtful consideration of the obstetricians of the day, and is quite as worthy of a place in a manual of obstetrics as the exploded procedure of Sigault.

Part V., Unnatural Labor, is divided into three chapters—Unnatural Labor from Abnormal Condition of the Expelling Power, Unnatural Labor from Abnormal Conditions of the Passages, Unnatural Labor from Abnormal Conditions of the Child. Under this last head are included malpresentation as well as monstrosities, plural births, etc. Under Unnatural Labor from Abnormal Condition of the Expelling Power we have a description and figures of a somewhat complicated set of harness, invented by Dr. Protheroe Smith, intended to aid the expulsive powers when misdirected or otherwise faulty. Our author says he has not tested the usefulness of this contrivance, but seems to be strongly impressed with its adaptedness for the end in view. For our own part, we are prejudiced judges in such a case, having formed an opinion in advance against all such appliances, and are therefore unfit to give an opinion.

Part VI., Complex Labor, treats in separate chapters of Retention of the Placenta, Hæmorrhage, Puerperal Convulsions, Rupture of the Uterus, and Inversion of the Uterus. These are all very good, but we must say that it detracts, in our estimation, from the value of the last, that it contains no mention of Thomas, of New York, or James P. White, of Buffalo, whose names are inseparably connected with this subject.

The work concludes with Part VII., On Puerperal Diseases, of which only three are mentioned—Phlegmasia Dolens, Puerperal Mania, and Puerperal Fever—rather a meagre array even for a manual.

We conclude as we began, with hearty commendation of the book before us. If we have taken the liberty of pointing out what seemed to us its few deficiencies and shortcomings, it has been in no spirit of mere fault-finding, but only because it is so good that its special excellences were too numerous for mention, while its few faults are so easy of remedy that, while they do not impair its general excellence, it is a pity they should remain. Then, again, we are all sharp enough to detect flaws in the most perfect work, and like well enough to mention them as evidence of our superior wisdom. But we frankly confess, much as we should like to have done it, we could not have written a book any thing like so good as this. The good paper and clear print of the American edition make it a pleasure to read it, and do great credit to the enterprising and well-known publishers whose imprint it bears. P.

The Theory and Practice of Medicine. By FREDERICK T. ROBERTS, M.D., etc. Second American, from the last London Edition, Revised and Enlarged. Philadelphia: Lindsay & Blakiston. 1876.

The appearance of a second edition of this text-book shows the appreciation in which it is held, and renders it unnecessary for us to comment upon it at any length. It has become one of the acknowledged standards of authority for the student; and its author, aware of this fact, seems determined that it shall be kept in accord with the advancing knowledge of the day, and deserve the honorable position accorded to it. It occupies very much the place among British works on Practice that Flint's book does in this country. Not a meager compendium without vitality or originality, nor yet a cumbrous and exhausting as well as exhaustive production, to be lauded, talked about, and not read, but a good, sufficiently full, readable book, to be carefully studied and referred to with pleasure as well as profit.

Its arrangement of topics is simple and satisfactory, and, for all we can see, as free from objection as any other. All diseases are divided into three classes—General Diseases, Constitutional Diseases, and Local Diseases. Perhaps no two physicians would arrange the immense variety of diseases under these three heads exactly as the author has done. But until we can agree among ourselves on this point we need not criticise another very severely.

It would be well not only if students, but medical teachers also, would heed Dr. Roberts's opening words and govern themselves accordingly: "In order to acquire a satisfactory knowledge of the science and art of medicine, it is essential that the mind should have been previously cultivated and trained, and at the same time stored with the requisite information by a careful study of the fundamental and more scientific subjects which form the earlier part of the medical curriculum." We most earnestly wish that this desideratum, which includes both preliminary education and a graded medical course, could be enforced on every one before they were allowed to assume the responsibilities of medical practice.

The work of Dr. Roberts is an excellent one, and unless we allow our patriotism to warp us in favor of Flint's, we do not know where a better text-book for the student is to be found. P.

REPORTS OF SOCIETIES.

MUSKINGUM COUNTY MEDICAL SOCIETY.

THURSDAY EVENING, *August* 10, 1876.

The August session of the Muskingum County Medical Society was held at the residence of President Larzetere, Putnam Avenue.

The PRESIDENT stated that the topics for discussion were Diarrhœa and Dysentery.

Dr. McELROY suggested that these topics be separated, and dysentery be discussed at this session first, and then, if time permitted, the subject of diarrhœa; which was accepted.

Dr. CHAMBERS said he knew something of dysentery from experience. In early life had had an epidemic to contend with, and was very unsuccessful. Had a good library, read what authors had to say, and treated patients in accordance with authority, and, as stated, very unsuccessfully. Had an opportunity to experiment in his own family, and was much more successful than when he was following in the footsteps of authority. In this way worked out a plan for himself. Does not lose any cases now-a-days. Keeps a compress, wet with either cold or warm water, over the abdomen all the time. Gives generally Dover's powder and Hyd. C. creta to keep every thing at rest. This failing, will give morphine, and moves the bowels every other day with castor oil or salines. Relies on opium, generally Dover's powder, to keep patients free from pain all the time; and Hyd. C. creta, with castor oil, to keep bowels open; but gives castor oil only every other day. Has tried nearly every thing, but finds the expectant treatment the best. Does not think it possible, by any treatment, to cut the disease short.

Dr. NYE thinks Doctor Chambers about right in what he has just said. Thinks that keeping the bowels wet all the time an almost indispensable remedial measure. Thinks the castor oil and opium treatment the best. Has used Epsom salts, with elix. vitriol, with very good results, and gives it with the utmost confidence. Has occasionally to use quinine to shorten paroxysms.

Dr. HOLDEN thinks dysentery a very important subject. Has had a large experience, much to the same effect as that of Dr. Chambers. Used to think that calomel ought never to be given, but now thinks otherwise. Finds most of the cases now-a-days typhoid in tendency. Finds the tongue furred, and frequent small discharges. Here he gives calomel, and follows it by saturated solution of Epsom salts, with elix. vitriol. No matter how often patients are going to stool, there is still something left to come away. After tongue cleans, has found nothing so good as lead and opium. Opium ½ gr., lead 1½ to 3 grs. for a dose, he finds a very soothing treatment. Thinks that, after evacuations, quinine a very necessary medicine. Gave details of a case of chronic dysentery he treated in California many years ago. The patient had lain in a San Francisco hospital one year, and got no better; three months in a Sonora hospital, with no better results; and had come home to die. Had tried every doctor in Columbia, the place of his residence, but myself. He heard of the new doctor, and sent for me. Found him in an easy chair, with his elbows on his knees, his only or most comfortable position. He passed nothing but a bloody jelly. He was much emaciated; could not sit up long, and had to be lifted or assisted, both up and down. Was at the time attended by Doctors Oxley and Campbell. Before prescribing, I went to see them, and told them Harris had sent for me, and asked them if they desired to retain him. They were glad to give him up to me. Dr. Holden gave him 15 grs. calomel, and, in five hours, a tablespoonful of oil, with a teaspoonful of spirits of turpentine. He complained much of its unpleasant results, and was, in fact, to all appearances, made terribly worse; lost the power of speech for six hours, and was very greatly prostrated; and neither Dr. Holden nor any of his friends expected him to live more than a few hours. Dr. Holden gave him laudanum, camphor, and turpentine in acacia mucilage, largely of laudanum, and placed a blister over the whole abdomen. In forty-eight hours he got easy from the effects of the blister; the discharges ceased at once; and in three months he was quite hale and hearty. Though successful in that case, he would not now repeat the treatment under the same circumstancees. A larger experience dictated a milder course. Has used injections of carbolic acid with very satisfactory results.

Dr. Ball said that dysentery is now making its appearance, with other diseases, in our city. There are many varieties, necessiting very different treatment. Has had it with high fever, and with typhoid symptoms. Many years ago witnessed an epidemic in Irville. It was so severe in many cases that death ensued in forty-eight hours after decisive symptoms were developed. Did not seem that any thing in the way of medicines that were given did any good.

He liked a combination of the different modes of treatment spoken of by those who had preceded him in the discussion. Thinks calomel often necessary; used to think large doses needful. Now knows by experience that small, very small, one-half grain, are equally efficacious. Thinks that a combination of blue pill, lead. and morphine very satisfactory in its results. Thinks that saline purges are eminently beneficial. Gives small doses of calomel, and follows with a saline purge; and when the bowels have been freely evacuated, gives largely of opium. In fact, tries to keep patients in a condition of semi-narcotism much of the time. It gives them entire freedom from pain, and very often controls the more urgent dysenteric symptoms in from twenty-four to forty-eight hours. When opium by the mouth fails to bring the full measure of relief he deems desirable, gives opiate injections, and uses large doses. Believes that cold water, ice-cold, with large doses of opium injected into the rectum, has with high fever saved the life of some of his patients, who would, but for the relief this gave, have probably died.

Dr. Oatly thinks that Dr. Ball's treatment of acute dysentery very good. In chronic dysentery he prefers to use the speculum in the rectum, and pencil the ulcerations with solutions of nitrate of silver, or sometimes nitric acid, which applications are followed by the most decisive relief.

Dr. Ball thinks Dr. Oatly's suggestion, to make direct applications to ulcerations in the lower bowel, when they exist, very good practice. Said that copaiba in small doses in chronic dysentery was an exceedingly good remedy.

The President (Dr. Lazetere) felt like talking in a somewhat different channel from those who had preceded him in the discussion. Thinks that it is interesting to know what is the pathological condition in dysentery, the beginning, as it were, of the disorder, and its mode of progress. It is now conceded that the epithelial structure is almost always involved in a hyperæmic condition in dysentery, with function of the structure suspended.

The significance of this can be comprehended in view of the fact that the normal epithelial membrane is an essential condition of nutrition.

The epithelial membranes desquamate in much the same way as the skin, with this difference, that the skin throws off its dead epithelium in dry, horny scales, while the mucous epithelium is cast off in moist scales. In dysentery this desquamation is too rapid, not in scales, but in mucus or jelly-like material, wholly suspending or seriously impairing the functions—natural functions of the mucous lining of the intestinal tract. Thinks that it is necessary to understand what is going on in the bodies of patients as a needful preliminary to successful treatment. He would say that the acid sulphate of magnesia, Epsom salts, and elixir vitriol is a very useful agent. The acid retards the motions of the ciliary appendages of epithelial cells and structures. I see it frequently spoken of in current journals. In regard to other agents, thinks that opium is one of the most valuable, though he feels certain that it can do harm without proper preparation for its administration, which is the expulsion of effete matter. Instanced the case of Dr. J. B. Erwin, who, during a recent illness, was taking solution of opium largely (teaspoonful every two or three hours) for a dysenteric condition. He was not improving on it, and accidentally took a large dose of croton oil, half a teaspoonful, in a mistake, which evacuated a large amount of dry feces in small lumps, and, though apparently much prostrated, and very much alarmed, rapidly got better. Thinks it highly important that the whole intestinal canal should be fully evacuated at short intervals in dysentery.

Dr. NYE desired to make an addenda to his remarks. Thinks that the late Dr. Safford was preëminently successful in the treatment of dysentery, and his agents were sugar of lead and opium. His usual way of giving them was, ten to twenty drops of laudanum and two grains of lead every hour or two till pain and discharges ceased.

On motion of Dr. Larzetere, the Secretary was requested to furnish a copy of the journal of the Society's proceedings for publication to the Ohio Medical and Surgical Journal, of Columbus.

Z. COLLINS MCELROY, *Secretary.*

THE editor desires to apologize for the delayed appearance of this number of the JOURNAL. It has been occasioned by the short-comings of contributors, who have had their time taken up in preparation for, and attendance upon, the International Medical Congress and other similar gatherings. We promise to do our best to prevent its occurring in future.

OHIO

MEDICAL AND SURGICAL JOURNAL.

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ORIGINAL COMMUNICATIONS.

Art. I.—*The Relation of Trophic changes to certain alterations of Sensation and Motility.* By Allan McLane Hamilton, M.D., Visiting Physician to Epileptic and Paralytic Hospital, New York; Member of American Neurological Association, etc.

One of the most attractive neuro-physiological studies is that of trophic influence, and though the existence of trophic nerves is denied by many, there are, on the other hand, a number of able investigators who have given us reports of definite and valuable experiments, which clearly prove the existence of certain nerve fibers, which markedly influence nutrition. The neurologist will constantly meet with clinical examples of such changes, which are beautiful evidences of this form of pathological action.

It was Waller who announced the indisputable fact that nerves cut off from their centers degenerate. This may be demonstrated by cutting the posterior root of a spinal nerve between the intervertebral ganglion and its emergence from the cord. The part attached to the cord degenerates, while that connected with the ganglion retains its vitality. If, on the other hand, the cut be made at the distal side of the ganglion, the remote trunk degenerates, while that coming from the ganglion is uninjured. This shows rather conclusively that certain nerve trunks depend upon their connection with, and the normal condition of, the ganglionic centers they may be attached to. This experiment will enable us to appreciate how disease, such as neuritis, for example, may destroy the connection of any nerve with a ganglionic center, and peripheral changes may result.

Again, in certain central diseases, such, for instance, as progressive muscular atrophy, it will be found that certain cells in the antero-lateral columns of the cord are destroyed, which send fibers to special muscles which are atrophied, while other cells in the locality remain healthy. Duchenne and Westphal advanced this idea of trophic cells, and clinical experience certainly proves that they may not have been wrong in their conclusions.

In defiance, however, of this law of Waller's, it is proved, by one disease especially, that the other functions of a nerve, whether it be sensory or motor, may remain perfectly intact, and still trophic changes may follow. Brachet, Flint, and others have proved that development has taken place in monsters, who have lived some time without any cerebro-spinal axis. Consequently this is an argument for the dependence of nutritive changes upon vaso-motor action.

As an example of the disease I have alluded to, where a healthy cerebro-spinal nerve may exist, and still trophic changes of the most decided character may occur, I may mention progressive partial facial atrophy. So far, I think no post-mortem examinations have been made, but even if they have not, there is no affection of sensation or motion which points to the normal condition of the cerebro-spinal nerve fibers.

I think we may assume that trophic processes are closely connected with modifications of sensorial and motorial function, though they may not be directly dependent upon either.

I. Trophic changes may be influenced by altered sensation alone.

II. Trophic changes may be influenced by motorial alterations.

III. Trophic changes may occur independent of any alteration of motorial or sensorial function.

Neuralgia furnishes us with examples of the first class, and a continued hyperæsthetic condition may be followed by—1. Muscular atrophy. 2. Destruction of hair and pigment cells. 3. Eruptions dependent upon local loss of vitality. In sciatica oftentimes the affected leg will be an inch or more less in circumference than its fellow, and in facial neuralgia the wasting of certain muscles of the face is sometimes seen. Nothnagel considers atrophy following sciatica to be due to an affection of the nerves governing the vessels, and that the loss of substance depends upon an insufficient blood supply. Of thirty cases he examined, five were found with atrophied limbs, and "four of these were complicated with vascular cramp," and not to any change in the nerve fibers themselves. Now I think it has been sufficiently proved that trophic changes (*per se*) may exist without any vascular complication whatever. This can be verified by the observations of Himes and others, who have found unilateral vaso-motor neuroses of long standing without any wasting. Even supposing such want of use, on account of the painfulness of the effort, be given for a cause, I do not think it will account for the change, for many cases have been met with in individuals who took as much exercise as others more healthy. The blood supply of the muscles is clearly not interrupted.

Neuralgic patients occasionally attract attention on account of certain curious changes of the hair of the head and face. White tufts in the track of the supra-orbital branch of the fifth nerve, white hairs in the eyebrows, etc., bear evidence of the close connection between severe pain and trophic changes.

Weir Mitchell* relates a number of instances, some of which I have seen repeatedly. Not only does the hair fall out sometimes with neuritis, but it may also become thick or bushy. These changes have been witnessed chiefly in the cases of hyperæsthetic skin, by Larrey and others. Weir Mitchell dwells upon certain trophic alterations following paralysis, and he has seen the hair disappear from the fingers, and the nails become curved.

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* Injuries of Nerves, p. 163.

A familiar illustration of this mal-nutrition which follows acute pain is the carious state of the teeth which old neuralgics suffer.

In one case under my charge at present the teeth on one side are perfectly white, sound, and healthy, while the others had become carious and fallen out. So extensive is the alopecia in this individual that I am inclined to think it is the result of syphilis, but am unable to trace it to that disease.

These changes are admirably exemplified by various skin diseases, attended by exquisite pain. Herpes zoster is the most pronounced, perhaps, of this class. It is without doubt the result of disordered nerve action, and is connected with neuralgia, such neuralgia and the eruption being cured by galvanism. Certain remedies, acting upon the nerve centers, will accomplish the same result, while local ointments do no good whatever.

Vulpian has recently shown the existence of pemphigus with certain amytrophic paralyses, and we may consider these skin diseases to depend upon imperfect vitality of the skin. Cases have been published of obstinate ulceration of the cornea dependent upon facial neuralgia, and these trophic changes, as well as those I have mentioned, disappear with the pain under appropriate treatment, the opacity and ulceration passing away. It is almost unnecessary to dwell upon the myopathies following occlusion of motor fibers, or trunks, atrophies which are due not only to subsequent want of exercise, but to central destruction as well.

A striking and beautiful illustration of the third class is partial facial atrophy. In this disease there is absolutely no pain, nor is there impairment of voluntary muscular power. The train of symptoms is peculiar: 1. Loss of hair, or change of color. 2. Skin becomes tense, parchment-like, and white. 3. Atrophy of one half of tongue. 4. The absence of central disease. 5. Atrophy always local. 6. Sensory and motor filaments always healthy.

Himes,* whom I have already quoted, considers the change to be due to a degeneration of nerve filaments which go to certain cells, these cells being trophic. He cites Pflüger, Erb, and Vulpian in support of his theory.

Whatever we know, it is so far only clinical. We can do little more than theorize. Waller has settled one point, perhaps the most important one, and Jewell † has found certain cells in the posterior spinal ganglia which evidently preside over specific nutritive processes.

NEW YORK, 123 East Thirtieth street, October 20.

ART. II—*Infantile Tetanus, Trismus Neonatorum, Trismus Nascentium.* By J. H. POOLEY, M.D., of Dobbs's Ferry, Westchester County, New York. Read before the Yonkers Medical Association.

This disease has lately been recalled to my attention by the fact that I and my neighbor, Dr. Ives, have each had a case in the village of Hastings, on the Hudson. This complaint is rarely seen in country practice, and is sometimes confounded with inward spasms, which occurs much oftener, but is perfectly distinct, and much less fatal. It differs from it in its pathology and symptoms, and is generally unaffected by any known remedy. It runs its course, in spite of all treatment, to a fatal issue. Dr. Sims and a few other writers have noticed it, but it has appeared very strange to me that the various obstetrical authors should have almost passed it by unnoticed.

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* Report of case of Hemiatrophia facilalis progressiva (British Medical Journal, August 26, 1876).

† Dr. Jewell's paper before American Neurological Association, 1876.

Its etiology is rather difficult and unsatisfactory, but without doubt one of its frequent causes is want of attention to the cord and umbilicus, especially cleanliness, until the casting off of the same is complete.

Tetanus infantum occurs probably in all countries, but it does not greatly increase the mortality, except in certain localities. Some of the British and continental physicians, whose observations of disease have been ample, confess that they have seen so few cases that they have almost no personal knowledge of this malady. On the other hand, there are, or have been, places in every zone where it is or has been so prevalent as to sensibly check the increase of population. The attention of the profession, more than half a century since, was directed to the prevalence of tetanus in the island of Heimacy, off the coast of Iceland. On this island scarcely an infant escaped, while on the mainland scarcely one was affected. The inhabitants live chiefly on the flesh and eggs of the sea-fowl, and are filthy and degraded in their habits. About the year 1810 the Danish Government deputed the land-phisicus of Iceland to visit Heimacy and ascertain the nature of the disease which was so destructive to the infants. Although this gentleman from his brief stay saw no case himself, he obtained interesting particulars in reference to the disease from the priests and parents. At this time scarcely an infant escaped. Again, according to Dr. Schleisner, whose report in reference to the same locality was published forty years later, tetanus was still the most fatal of all infantile maladies. Tetanus infantum is also represented as very fatal in the island of St. Kilda, off the coast of Scotland. In the temperate regions of America and Europe cases are not frequent, except occasionally in the poor quarters of the cities, in foundling hospitals, and rarely in country towns, where the conditions are favorable for its occurrence. The records of the Dublin, Stuttgart, and Stockholm lying-in asylums furnish many cases. In the town of Fulda, Germany, in

1802, Dr. Schneider saw six cases in fourteen days, while a midwife in the same place stated that she had seen more than sixty in nine years. But the greatest mortality from tetanus infantum is in warm climates, both of the Eastern and Western Hemispheres. In the West Indies, the southern portion of the United States, the equatorial regions of South America, and in the islands of Minorca and Bourbon it has, in many localities, been the most frequent and fatal of infantile maladies. It is a remarkable fact that in the warm regions of the United States the victims are chiefly negro infants. L. S. Grier, M.D., of Mississippi, says, in the New Orleans Medical and Surgical Journal, May, 1846, "It is a disease of fatal frequency here, and on the cotton plantations of Alabama." Dr. Wooten, however, says he has never seen a white child affected with it. In New Orleans, according to the death statistics in our possession—which, however, relate to only one year—tetanus infantum is the most fatal of all diseases except phthisis. Mr. Maxwell says, in the Jamaica Physical Journal, 1835, "From observations that I have made for a series of years, I found that the depopulating influence of trismus neonatorum was not less than twenty-five per cent. It scarcely has a parallel within the bills of mortality." This gentleman's observations relate to the West Indies. Similar statements are made in reference to this malady as it occurs in Cayenne and Demarara, in South America.

While tetanus infantum prevails in regions wide apart, and presenting very diverse climatic conditions, there is a similarity as regards the personal and domiciliary habits of the people who suffer most from its occurrence. It occurs chiefly among those who are filthy and degraded in their habits, who live, either from choice or necessity, in neglect of sanitary requirements. This fact aids us to some extent in an understanding of the causes. That uncleanliness and impure air are a cause of tetanus is as fully demonstrated as most facts in the etiology of diseases. The statements of physicians in the Southern States, who speak from extensive observation among the negroes, are strongly corroborative of the idea that the disease is in great measure due to uncleanliness and impure air. In certain cases the assignable cause is exposure to wet or cold, or to a variable temperature, which it is known occasionally causes tetanus in the adult. Another cause is believed to be some irritation in the bowels, as from retained meconium. Observers in the Southern States and elsewhere occasionally mention this as a cause.

In 1846 there appeared from the pen of Dr. Sims, then practicing at Montgomery, Alabama, a paper designed to show that tetanus of the new-born is produced by pressure exerted on the nervous center, through depression of the occipital bone. In 1848 the same writer published a second paper, also in the American Journal of Medical Science, fully enunciating his theory, as follows: "That trismus neonatorum is a disease of centric origin, depending on a mechanical pressure exerted on the medulla oblongata and its nerves; that this pressure is the result, most generally, of an inward displacement of the occipital bone, often very perceptible, but sometimes so slight as to be detected with difficulty; that this displaced condition of the occiput is one of the fixed physiological laws of the parturient state; that when it persists for any length of time after birth it becomes a pathological condition, capable of producing all the symptoms characterizing trismus neonatorum, which are instantly relieved simply by rectifying this abnormal displacement, and thereby removing pressure from the base of the brain." In both papers cases are narrated in support of this theory, but there are serious objections to this mode of explaining the occurrence of the disease. In the first place, if this explanation were correct, tetanus ought ordinarily to occur sooner, for the occiput is as much depressed previously, and in the majority of cases more depressed than at the period when it does actually commence. Pressure on the medulla would certainly be followed by immediate and marked symptoms, instead of an immunity for four or five days.

Again, well known facts in reference to the causation of tetanus infantum conflict with Dr. Sims's theory, as, for example, epidemics of the disease, its prevalence in one locality and absence in another, although no particular attention is given to the position of the infant, the diminution of the number of cases by greater attention to cleanliness, of which there is abundant proof. Moreover, there are many reported cases of this disease at the commencement of which there was no perceptible displacement of the occipital bone. Dr. J. Lewis Smith justly observes, "The inequality of the cranial bones often observed in tetanus infantum should, in my opinion, be explained as follows: When the new-born infant becomes emaciated the volume of the brain is diminished, like that of the trunk or limbs, and the sinking of the occipital bone simply corresponds with the amount of waste in the cerebral substance. Whatever the disease in the young infant, if there is much emaciation the parietal bones will usually be found more prominent than the occipital. Now in fatal tetanus infantum emaciation is very rapid; those fleshy and plump, if the disease do not speedily end, become pinched and wrinkled. Viewed in this light, the occiptal depression should be regarded as a result, not cause of the tetanus." Athough we do not accept the theory which attributes tetanus infantum to occipital depression, there are a few cases on record in which it was apparently due to injury of the head received at birth. Dr. Sims has related one such case, that of a negro infant. Dr. W. C. Sutton published such a case in the Nashville Journal of Medicine and Surgery, April, 1853. The infant at birth was apparently dead, but was resuscitated so as to live eighteen hours in a state of tetanic rigidity. In cases in which tetanus begins at birth, doubtless the cerebrospinal axis is in some way affected; but in the absence of post-mortem examinations the exact nature of the lesion is uncertain. It is evident, therefore, that in this disease, as in eclampsia, the cause in different cases may be entirely distinct. Dr. James Johnson many years ago expressed his belief in the multiplicity of causes, and he had been a carefully intelligent observer in the West Indies. In conclusion, the causes may be arranged in two groups, one external, the other internal. In the first group should be placed imperfect ventilation, personal and domiciliary uncleanliness, and atmospheric vicissitudes; in the second group, so far as ascertained, inflammation of the umbilicus and umbilical vessels, meningitis, and, rarely, injury of cerebro-spinal axis during birth. The lesions resulting from tetanus infantum pertain chiefly to the circulatory system. In the cases examined by Professor Cederschjold, of Stockholm, the meningeal and cerebral vessels, and those of the spinal cord, the cavities of the heart, and the large vessels connected with the heart, were distended with blood. Dr. West says: "The most frequent post-mortem appearance in this disease, and that which I found in the bodies of all the children I examined, consists of effusion of blood, either fluid or coagulated, into the cellular tissue surrounding the theca of the cord. Conjoined with this there is generally a congested state of the vessels of the spinal arachnoid, and sometimes an effusion of blood or serum into its cavity. The signs of congestion about the head are less constant, though much oftener present than absent, and sometimes existing in an extreme degree; while in one instance I found not merely a highly congested state of the cerebral vessels, but also an effusion of blood, in considerable quantity, between the skull and dura mater, and also a slighter effusion into the arachnoid cavity." Dr. Weber, of Riel, also placed infants who had died of tetanus on their faces, and without exception found injection of the capillaries of the cords and spinal meninges, and extravasation of blood. In two cases examined by Dr. J. Lewis Smith there was intense injection of the cerebral meninges and of the meninges of the upper part of the spine, but no extravasation was noticed. The spinal canal was not opened. In a third case, in which it was opened, there was extravasation in addition to the congestion. This was especially observed along the spinal theca. Dr. H. O. Wooten (N. O. Med. and Surg. Jour., May, 1846) states that he has made several post-mortem examinations, and has found the pathological appearances as uniform as in any other disease, as follows: "Engorgement of the substance of the brain, and of the meninges lining the base of the brain, the medulla oblongata, and spinal marrow; liver congested." It is seen from the above observations that tetanus of the infant is ordinarily accompanied by great passive congestion, which is especially marked in the cerebro-spinal axis, and that frequently extravasations occur from the distended capillaries. The embarrassment of respiration and the retarded circulation of blood consequent on the tetanic rigidity afford sufficient explanation of this state of the vessels.

Symptoms.—In many cases premonitory symptoms are absent, or are so slight as to escape notice. Sometimes there is a degree of fretfulness previously, but no more than is often observed in those who continue in good health. The first symptoms which alarm the parents, and show the grave nature of the commencing disease, is inability to nurse, or evident pain and hesitation in nursing. Commencing with rigidity of the masseters, the disease gradually extends to the other voluntary muscles, and in the course of a few hours the muscles of the limbs, as well as of the trunk, are involved. Persistent muscular contraction, which is the pathognomonic feature of infantile tetanus, is developed, not fully in the beginning, but by degrees in each affected muscle, so that it is not till after the lapse of several hours, perhaps even a day, that the greatest amount of rigidity is attained. Therefore, in the commencement of the disease, the limbs can be bent and the jaws pressed open more readily than at a subsequent stage, though with manifest pain to the infant. During the period of maximum rigidity the jaws are fixed almost immovably, often with a little interspace between them, against which the tongue presses, and in which frothy saliva collects. The head is thrown backward and held in a fixed position by the stiffness of the cervical muscles. The fore-arms are flexed; the thumbs are thrown across the palms of the hands, and are firmly clenched by the fingers; the thighs are drawn towards the trunk; the great toes are adducted, and the other toes flexed. Occasionally opisthotonos results from the extreme contraction of the dorsal and posterior cervical muscles. The infant can sometimes be raised without any yielding of the muscles, by one hand under the occiput and the other under the heels. The rigidity is liable to variation in its intensity, even after the full development of the disease. If the infant is quiet, especially if asleep, the muscles are partially relaxed to such an extent, sometimes in the first stage of the complaint, that the features have a placid and natural expression, though only for a short time. There are frequent exacerbations in the muscular contraction, sometimes occurring without any apparent cause, and sometimes produced by any thing which excites or disturbs the child. Attempts to open the lips or jaws, or eyelids, or to bend the limbs, blowing on the face, or even the crawling of a fly upon it, occasions the paroxysm. The muscular movements which occur during spasms are sometimes described as clonic. There is, indeed, occasionally some quivering of the limbs, and yet, so far from the muscular action being a clonic spasm, it possesses a tonic character, which is at times intensified. In fatal cases the paroxysms occur more and more frequently until the period of collapse. The crying of the child affected by tetanus is never loud, however great the suffering. It is variously described by writers as "whimpering" or "whining." It is of this suppressed character in consequence of the rigid state of the respiratory muscles and their imperfect movement. The milk placed in its mouth is in great part pressed back through the violence of the spasm which is induced by the attempt to feed it.

The condition of the bowels is not uniform. They may be relaxed, particularly if the disease is due to some irritation in them. In other cases the stools are natural or constipated. According to Sir Henry Holland, one of the first symptoms which occurred in cases on the island of Heimacy was strabismus, with rolling of the eyes. If true, the proximate cause of the death in such cases would seem to be disease in the cerebro-spinal axis. Contraction of the pupils commonly occurs in the stage of collapse.

Mode of Death.—Death in infantile tetanus may occur from apnœa in the paroxysms, from extreme congestion of the cerebral vessels, apoplexy; and lastly, it may occur from exhaustion. The last mode is, probably, the most frequent.

Prognosis.—All writers, till recently, agree that tetanus of the infant rarely terminates favorably. Cullen attributes the ignorance of physicians in regard to this disease to the fact that it is so little amenable to treatment that they are not usually summoned to attend those affected with it. In the island of Heimacy, of one hundred and eighty-five cases occurring during a series of years, about the commencement of the present century, not one survived; and in the same locality, at a more recent period, according to the report of Dr. Schleisner, already alluded to, the mortality was sixty-four per cent. Similar statements in regard to its fatality are given by the physicians in the Southern States. Dr. H. C. Wooten, of Alabama, says (N. O. Med. Jour., May, 1846) that he has "never seen a decided case of tetanus nascentium that did not prove fatal, and that it is very generally deemed useless to call in medical aid after the initiatory symptoms are well declared." Dr. D. B. Nailer (N. O. Med. Jour., Nov., 1846) says: "About two-thirds of the deaths among the negro children are from this disease, and so uniformly fatal is it that a physician is never sent for. My own experience and observation corroborate this opinion, and tend to prove its fearful mortality. I never saw a recovery." Yet Dr. J. Lewis Smith says death does not always result. Eight of the forty cases collected by him recovered, but a correct opinion can not be formed from this of the actual ratio of favorable to unfavorable cases, since favorable cases are much more likely to be published. In the history of these eight cases two interesting facts are noticed, which, when present, may serve as a ground for hope of a successful termination. These were the age at which the disease began, and fluctuation in the symptoms. With two exceptions, the infants who recovered were about a week old when the initiatory symptoms appeared, and there were fluctuations in the gravity of the symptoms; whereas fatal cases ordinarily grow progressively worse. Yet in favorable cases the symptoms are never so severe as they become in a few hours in those who succumb. From what has been said the duration will readily be inferred to be uncertain. It is commonly short. To one who has seen this disease in the new-born, or is familiar with its symptoms, diagnosis is easy. The symptoms which possess diagnostic value are more manifest and reliable than in most other infantile affections. Permanent rigidity of the voluntary muscles, with temporary exacerbations, such as have been mentioned, which are induced by any cause which disturbs the infant, as attempts to open the mouth or eyelids, is pathognomonic. In considering the treatment of this disease with medicinal agents, we must remember the great difficulty which the child experiences in swallowing. Without care, a considerable part of the dose is lost by the spasms of the muscles of deglutition which ordinarily occur when the spoon is placed in the mouth; so that, unless special attention is given to this matter, it is uncertain whether the prescribed quantity is fully administered. The treatment employed by different physicians has been very diverse and unsatisfactory. Finckt states that whenever antiphlogistics were prescribed they did harm, and that the abstraction of blood, even in small quantities, aggravated the symptoms. The same results have followed depletory measures in the practice of other physicians. The internal remedies which have been most frequently prescribed are opiates and antispasmodics, but they are generally useless. When anæsthetics began to be employed in the treatment of diseases it was believed that they would be especially useful in cases of tetanus. Accordingly chloroform has been used in tetanus in the infant, with the effect of controlling the spasms during the time of its use, but without curing the disease. Anæsthetics certainly relieve the suffering of the infant, and on this account, even if they do not prolong life, their judicious employment seems proper. The remedy which, in my opinion, is far preferable to all others, is hydrate of chloral. Since the introduction of this agent into therapeutics it has been employed in the treatment of this disease with so good a result that it will probably supersede all other remedies for this purpose. The dose is one to three grains by the mouth, or, if there is great difficulty in swallowing, double the quantity by the rectum. Moreover, by the use of chloral the suffering of the child is greatly diminished. The administration of alcoholic stimulants is required at short intervals on account of the rapid emaciation and great prostration. Local treatment, directed to the umbilicus in those cases in which there is evidence of inflammation, should not be neglected. A warm foot-bath every few hours and stimulating lotions to the spine are useful.

Art. III.—*Modern Treatment of Fractures.* By G. W. Garrison, of Utica, Licking County, Ohio. Read before the Licking County Medical Society.

The subject assigned me at our last meeting, you will notice, reduces itself to one of a practical nature, and, of course, in a brief essay I must leave out all details as to old, and now disused, methods of treatment.

The word fracture means to break or divide, and we have several kinds of fractures that might be mentioned, such as

(1.) Simple fracture; that is, when the bone only is divided.

(2.) Compound fracture; that is, severing of the bone with a laceration of the soft structures communicating with the broken bone.

(3.) Comminuted; that is, where the bone is broken into several pieces.

(4.) Complicated; that is, the bone is not only broken, but there is lesion of some important vessel or nervous trunk.

Furthermore, fractures in regard to their direction are denominated transverse and oblique.

To hasten on to the treatment of these difficulties, I might add—

(1.) That the fracture must be adjusted or reduced.

(2.) That the severed bones must be retained in place.

(3.) That we must combat any symptoms that may arise.

The reduction of fractures is to be effected by extension, counter-extension, and coaptation.

The parts are kept in apposition by position, rest, and an appropriate apparatus.

The position must vary according to the kind of fracture to be treated, and, to digress somewhat, I would suggest that all broken members should be handled with the utmost care and caution; rude or awkward manipulations, by which needless pain is inflicted, are not simply acts of wanton cruelty, but they are causes very often of inflammation and its consequences. Then all handlings should be done tenderly, and to assist your purpose, get your patients to understand before beginning that you will not give them any cruel treatment, or torture them by undue manipulations. Advise the patient to keep the broken limb in a passive state. Be very careful to enjoin this upon them, for any muscular action upon their part causes additional pain by moving the broken ends against each other, and by their rough, sharp extremities coming in contact with the soft tissues.

In regard to the position of the limb that is fractured, it must be placed at rest. If an upper limb, it may be laid in a pasteboard trough, to which are attached several cords to hold the arm suspended to the neck in a sling. If the lower limb, it may be placed in a horizontal or slightly elevated position in a state of extension, or on a double inclined plane.

In fractures of the upper extremities the patients may go about during treatment, but in those of the lower extremities they must submit to several weeks of quietude in bed.

The fractures that I purpose to call your attention more especially to are the following, viz.:

1. Fracture of the radius, known as Colles's fracture.
2. In the vicinity of the elbow-joint.
3. Of the neck of the humerus.
4. Of the arm or forearm.
5. Clavicle.
6. Neck of the femur.
7. Through the trochanter and above the knee.
8. Of the shaft of the femur.
9. Leg.
10. Patella.

In fractures of the radius known as Colles's or silver-fork fracture, the best appliance in my hands, after adjusting the break, and bandaging the hand-wrist and forearm, is the pistol-shaped splint to the outside of the arm and hand, and a straight splint to forearm up to the hand. By the use of the pistol-shaped splint I am able to keep the hand and wrist in an extended position, and hold the hand at an acute angle to the ulna, then bandage the splints from the ends of the fingers to the elbow, and if the bandage is closely applied all of the deformity will be overcome; then put the arm in a sling, with the thumb looking upward, and the hand projecting beyond the sling. After three weeks I set up passive motion in the wrist-joint, and use pasteboard splints for a week or two, and remove all dressings in four or five weeks.

In treating a fracture in the vicinity of the elbow-joint, either above or below that joint, I usually bandage the arm and forearm entire, and apply a right-angled splint to the outside of the arm, with the thumb looking upward. Set up passive motion in three weeks, and remove all dressings in four weeks. If the fracture should be of the olecranon process, then the arm and forearm must be kept in a straight position, with a long anterior splint applied to the arm and forearm, and the process held in apposition by adhesive plasters, carried around the joint and over the splint in the form of the figure 8. Remove all dressings in two weeks, and begin passive motion in order to prevent anchylosis of the joint.

In fractures of the forearm, of either one or both bones, I use an anterior and posterior splint three-fourths the width of, and securely bandaged to, the forearm; put the arm in a sling the same as in Colles's fracture, as before described; re-dress the arm as circumstances indicate, should the dressings become too loose or tight; remove all dressings and splints in four weeks, and order gentle exercise of the limb. In fractures of the arm I use two small splints to the inside and anterior surface of the arm, and the right-angled grooved splint to the outside of the arm and forearm; apply a bandage to the whole arm, and re-dress as the case requires; remove all dressings in four weeks. In fractures of the neck of the humerus, either surgical or anatomical, either impacted or non-impacted, intra-capsular or not, after restoring the limb, the most recent method of dressing the fracture is to apply a bandage to the entire arm; then use Welch's shoulder and arm splint, apply it to the outside of the arm and shoulder, and a leather-veneered splint to the inside of the arm; bandage both splints securely, and as you approach the shoulder let the bandage be carried over the prominence of the shoulder, in order to elevate the shoulder and keep the splint securely to the deltoid muscle. Remove all dressings in six weeks. In fracture of the clavicle the most modern treatment is, first, bring up the shoulder and reduce the deformity; second, retain the shoulder in this position, and thereby keep the broken bones in place. The first part of the procedure is easily effected by the surgeon's hands, but the second (that is, the retaining treatment) is the most important to both patient and doctor. Among the many different kinds of treatment which I have resorted to in army and civil practice, there is none in my hands so successful as the Fox method, with Hamilton's and Sayre's, all three in part used to every fracture, and I will try and give the dressing for an ordinary case of fractured clavicle. To retain the bone in situ, first use a wedge-shaped pad, with two strings three feet long, one at the front and the other at the back of the pad; elevate the shoulder well and put this pad well up into the axilla; tie one string to a collar (that has been made to accurately fit the sound shoulder to the back part, and the front string of the wedge carried forward over the chest and tied to the collar in front). This will hold the wedge in situ. Then, to hold the arm backward, cut a piece of canvas adhesive plaster about one yard long by three inches wide, and pass this around the arm about two-thirds of its length above the elbow, and attach it to the opposite side of the chest. Then to elevate the shoulder use the front part of an old dress sleeve and run the forearm through that, and have strings attached to it long enough to reach the collar, and tie these in this ring so that the weight of the arm will be made to rest in this sling, and draw the elbow well back. Then if there should be some displacement of the bones still use a compress over the broken ends, and retain it there by strong strips of adhesive plasters passing over the break, and each end secured to the back and chest. This last I would especially enjoin in children. In five weeks remove all dressings.

I will next speak of fracture of the patella. In the treatment of this difficulty the limb should be laid on a single inclined plane, in order to relax the quadriceps femoris muscles, and the foot should be secured to the distal end of the splint by bandages. The severed fragments should be brought together and secured there by adhesive plasters passing around the knee in the form of a figure eight, and these plasters should be made to pass around the splint also. Keep patient on his back for five weeks, and then perhaps you will have ligamentous union.

I will now take up the other fractures of the lower extremities, and the first one to consider is fracture of the neck of the femur. The dressing most applicable here is a bandage to the entire limb, to keep the muscles at rest and obviate any spasmodic action. I should have said first apply several strips of adhesive plaster to the leg, for the purpose of extension, and then the roller. After bandaging, lay the limb in a box three inches wider than the leg, and well padded posteriorly; restore the limb to its former shape by adjusting the fracture; then to the outside of the limb put a small sack filled with dry sand, extending from the crest of the illium to the plantar surface of the foot; also two others, one from the perineum to the condyle of the femur, and the other from the condyle of the tibia to the sole of the foot. The body is to be kept on a plane with the broken leg, and extension effected by weights carried over the foot-board of the bed, where there is a pulley fastened, and this extension to be kept up on the same plane with the limb.

In fractures through the trochanter or upper end of the femur, or just above the knee-joint, the most successful plan of treatment is the double inclined plane. The reason for treating fractures in this vicinity on the double inclined plane would suggest itself to any anatomist; and in order to substantiate this view I would refer you to the surgical anatomy of these parts by Gray in his text-book on anatomy, page 355, second American edition. The inclination of the plane must be in proportion to the amount of the separation of the broken bone.

Now, as regards fractures of the shaft of the femur, the best plan is to adjust the break first; bandage the limb entire; use the same box as suggested in fractures of the neck; then apply three leather-veneered splints to the thigh, extending from trochanter to the condyle of the femur. Apply the first one to the outside of the thigh; second one apply to the anterior surface, and third one to the inside of the limb; and these must be well padded, and secured by a bandage running from the knee to the pelvis. Extension is effected by adhesive straps, and the same pulley arrangements as described in fracture of the neck, where the limb is resting in the box above suggested. Lay your sand-bags along its entire length.

In fractures of the leg, first, apply adhesive straps for extension, and bandage the leg up to the knee; second, apply three leather-veneered splints to the limb—one outside, one anteriorly, and one inside; and these to be secured with a bandage. Lay the leg in a box similar to the one for broken femurs, only let it extend about three inches beyond the knee, and apply sand-bags to steady the broken member, as described in fracture of the thigh, etc. Extension also effected in the same way. Then, in all cases of fractures of the lower limbs, you must get up a fracture-bed, in order to have some way for your patient to evacuate the bowels and urinate without disturbing the break. A great many plans have been suggested. The best consists in letting the patient's bed be made on a mattress, with a movable piece or block of the mattress cut out where the pelvis comes, and have a piece to snugly fit this opening; and when the patient wishes to evacuate the bowels remove this block and set the stool-pot underneath. This will answer the purpose, at the same time the break is undisturbed. After eight weeks let your patient get up.

You will observe, gentlemen, that I have said nothing commendable of the starch or plaster of Paris bandages or dressings, for the simple reason I have tried them in primary dressings to my heart's dissatisfaction, and all I can say for them is that they make a good dressing, after the union has taken place and the splints have been removed, to prevent any accident to the break.

In closing this hasty paper on fractures I have not said any thing about compound, complicated, or comminuted fractures, for the reason that our essays must occupy only fifteen minutes in reading, and I feel that I have only given you very imperfect hints in such a brief time on this important subject, that authors have devoted several hundred pages to. Then to sum up: when called to treat a fracture, by all means have a good, honest man called to your counsel during the early treatment of the case, for there is always danger of more or less dissatisfaction when you dismiss your case; and if you have a good understanding at the outset it will materially aid you in after explanations of the deformities which follow such accidents. Give your patients to understand that they must expect some shortening of a leg, and, if in the vicinity of a joint, anchylosis. When a case recovers with some deformity they are liable to see other practitioners about the treatment of their case. And right here, gentlemen, we are all to blame in a measure; we are liable to give censure where none is deserved, and by understanding all the circumstances in connection with the case throughout we would not give any opinion, except that it was the best result that could be expected under the circumstances. I would add still further, give your patient all the attention possible, and don't neglect to visit him frequently, and the less money in the case the more you must be on your guard, or else you will be accused of neglect of duty in not giving the necessary visits to the case.

ART. IV.—*Anæmia of the Brain and its Membranes.* By Dr. JOHN C. PETERS, of New York, President of the Medical Society of the County of New York; President of the New York Neurological Society; Vice-President of the Public Health Association of New York, etc.

Anæmia of the brain and its membranes is, according to Dr. J. S. Steiner, relatively frequent in infancy, appearing as the result of numerous acute and chronic diseases, the principal of which are exhausting diseases, like profuse diarrhœa, gastro enteritis, follicular enteritis, dysentery, etc., all arising from unsuitable or insufficient nourishment, and, of course, more frequent in artificially fed children. It may also result from severe typhoid fever, or in rapidly-growing children, or from loss of blood. From its resemblance to acute hydrocephalus it was called hydrocephaloid by Marshall Hall. It is very common in the course of exhausting diseases, for the brain of course then partakes of the general impoverishment of the blood. There are marked paleness, pinched features, wrinkled forehead, with a prominence of the frontal and temporal veins, and the whole skin of the head is loose. The anterior fontanelle is depressed, the parietal bones overlap the frontal, producing a terrace-like projection, and the hair is scant and dry. There is generally great restlessness of the head, a constant moving of it about, accompanied by distortion of the features and frequent rubbing of the face and head with the hands, and plucking at the hair, eyelashes, ears, and nose; symptoms which are often wrongly referred to worms or inflammation of the brain. The eyelids are generally only half open, and the pupils dilated; great restlessness from want of nutrition of the brain and nerves, afterward with apathy from exhaustion. Sleep is short, and the child wakes up from it with wide, glaring eyes, but soon relapses into broken slumber. Contractions of the upper, with spasmodic movements of the lower limbs, together with occasional stiffening of the whole body, are common symptoms. Sudden and repeated watery vomitings, constipation, and sometimes diarrhœa, continue up to death. The abdomen is generally distended, doughy, and tender, with the skin wrinkled and in folds. The blood-vessels of the meninges are thin and collapsed, and contain only a small quantity of pale blood; and clear, serous fluid is often found in the sub-arachnoid cellular tissue. The brain is generally small and soft; the gray substance is pale, and passes over into the white without any sharp demarkation. There is often fatty degeneration of the neuroglia, and of the capillary blood-vessels.

Anæmia of the Brain.—The ventricles may be of normal size, but are often more or less distended with fluid. The whole substance shows few or no blood points on its cut surface, and is of milk-white color. The choroid plexuses are strikingly pale, and the sinuses of the dura mater contain but little blood, or generally a pale, fibrinous clot.

When caused by diarrhœa and summer complaint, the first indication is to check the discharges with bismuth and iron, and give small quantities of milk-punch with soda, and improve the nourishment of the child at once. When softening of the brain and passive dropsy are suspected, tonic diuretics, like the muriatic tincture, or ethereal tincture of the acetate of iron, are required. In some cases the disease runs a rapid but well-marked course in a few days, but generally is more protracted, and sometimes yields to the above treatment. It is generally the more grave the younger the child, but even in the worst cases it is not hopeless, for the infantile system, when judiciously treated, often revives marvelously.

When cerebral anæmia occurs as a sequel of typhoid fever, children who, previous to the attack, had normal mental acuteness and good memories, become forgetful and feeble-minded; the expression of their faces loses intelligence, and they look imbecile; their replies to questions consist of a meaningless smile, and they often take delight in childish amusements. Fortunately, these mental changes are generally transient, if good food and a moderate quantity of wine, spirits, and iron be given. The aromatic spirits of ammonia, the aqua ammonia anisatæ are good in their place, and musk is useful. Beef-tea, pounded raw meat, and wine administered liberally are almost essential.

Cerebral anæmia sometimes occurs in rapidly-growing children, especially between the ages of seven and ten years. It lessens their mental powers, makes their disposition peevish, produces frequent headache, giddiness, and mental hallucination, unquiet sleep, with grinding of the teeth. But quinine, iron, ale, wine, strong and easily digested food, milk-punch, and residence in the country will generally produce a rapid restoration.

Partial cerebral anæmia generally arises from tumors of the brain or thrombosis.

Cerebral Anæmia.—Jones and Sieveking say that anæmia of the brain is a condition of considerable importance, and one that is the cause of numerous morbid states. Where it exists the brain presents a generally pallid appearance, and especially the white matter is remarkably deficient in red spots, and more dead-white than normally. It is an important element in the diseases termed white softening and œdema of the brain, which may, in their turn, give rise to apoplectic effusion.

It will at once be seen that anæmia of the brain must be accompanied by fullness of the serous and lymphatic channels; that is, by a great abundance of fluid, both within the cerebral cavities, and generally filtrated through the brain substance round the vessels; and hence the condition may easily become one of œdema, and, in its extreme form, one of white softening.

Anæmia, cerebral, according to Hammond, in adults, is owing either to the blood in the brain being reduced below the normal standard, from hæmorrhage, deficient action of the heart, impaired nutrition, or to some cause preventing due access of blood to the brain, such as spasm of the vessels, or tumors, or it may arise from impoverishment of the blood, as in the cachexiæ, etc.

In cerebral anæmia, suddenly induced from profuse hæmorrhage, the most prominent symptom is syncope; vertigo is a general attendant, and there are paleness of the features and coldness of the extremities. The pulse is frequent, thread-like, weak, and the respiration is feeble and accelerated.

When the accession is more gradual, anæmic headache is very generally present, usually confined to a limited portion of the head, with a feeling of constriction, especially across the brows. The vertigo is notably increased on rising from the recumbent posture, and is as troublesome a feature as in most attacks of cerebral congestion. There is ringing in the ears, and loud noises are painful and exceedingly irritating to the nervous system. The pupils are largely dilated and sluggish, contracting slowly on exposure to strong light. When one eye is thus affected needless alarm is often excited. The retinæ are sensitive and opthalmic examination painful; the vessels at the fundus of the eye are small and straight, and the choroid paler than normal. The face is pale, lips colorless, and the skin cold and clammy. Nausea and vomiting are present in extreme cases, and epileptoid convulsions may occur, when sudden spasm of the cerebral vessels is also added. Feebleness of muscular power is always met with, and there may be general or partial paralysis, with anæsthesia, coldness, formication, pins and needles. In extreme cases the patient is insensible; in less severe forms there may be mental lassitude, or low delirium, and when the nerves are greatly irritated, extreme mental irritability.

Hallucinations and delusions are common in the slowly developed forms of cerebral anæmia. In all cases there is more or less drowsiness, from the profound syncope of the rapid form to mere languor in slight cases. In medium cases the patient readily falls asleep in the sitting posture, but becomes wakeful in the recumbent, as the quantity of blood in the brain is thus suddenly increased.

The cardiac, arterial, and venous murmurs of anæmia are generally present, and are sometimes heard by the patient, apparently in the head, and are then very annoying.

Gooch's cerebral hydrocephaloid anæmia in young children from exhausting diseases, especially diarrhœa, is well known and often mistaken for acute congestive hydrocephalus. The drowsiness is well marked, the head cool, the pulse small and weak, the features pinched, the pupils large and insensible to light, the fontanella, if still open, are depressed.

Exhausting hæmorrhages are a very common cause; also, exhausting discharges, such as diarrhœa, dysentery, and long-continued purulent flows. Pressure or obliteration of the arteries supplying the brain, and chronic spasm of them. Excessive mental exertion produces, first, cerebral congestion, and finally exhaustion, also great fear or shock.

Tobacco, antimony, oxide of zinc, and the bromides cause cerebral anæmia. Insufficient food, from starvation or dyspepsia, is a common cause.

It is most likely to be confounded with cerebral congestion, but there is drowsiness, not wakefulness, the pupils are dilated, not contracted, the pain is limited to one part of the head instead of being general, as in congestion, and it and the vertigo are increased in the erect position, and lessened by lying down. Finally, the effect of tonics and stimulants in mitigating the symptoms will be decisive. Cómpressing the carotids in the healthy subject causes dimness of sight, stupor, weakness of the legs, staggering, swooning, and sudden falling down. or there is a humming in the ears, tingling over the body, and in a few seconds complete unconsciousness and insensibility supervene, preceded by pallor of the face, dilatation of the pupils, and headache. Diminution in the number of red corpuscles produces similar symptoms. Spasm of the vessels from irritation of the vaso-motor nerves explains the origin and continuance of many cases of cerebral anæmia.

Alcohol must be given in very small doses at first. The carbonate and aromatic spirits of ammonia are useful. Gentian, colombo, and quassia are often required, and quinine may be given afterwards. When iron disagrees, manganese may be substituted. Hammond has given five-grain doses of the sulphate with excellent results. But food is the most important factor in relieving cerebral anæmia, and the recumbent position is often imperative. Small doses of opium are very useful.

Dr. Edward Long Fox (Pathological Anatomy of the Nervous Centers, page 52) says cerebral anæmia is often dependent entirely upon general anæmia, or upon plugging of the vessels, or from pressure of tumors or abscesses, when white softening may occur, or it may be general over the whole brain from deficient heart action. There may be general pallor of the brain, and extreme whiteness of the white matter, or some atrophy of the whole organ, with compensatory increase of cerebro-spinal fluid. The whole brain may resemble that which obtains in chronic senile dementia, or the atrophy may occur in spots when the interference with the blood-supply has not been complete. When it occurs at the surface of the brain, the depression caused by the atrophy will be filled in by fluid.

Cerebral anæmia may be caused by inanition, dyspepsia, or by drains on the system. Venous stasis, such as may be met with in aggravated cases of heart disease, must impede arterial circulation. It may be produced by mental emotion or shock; and finally the presence of an excess of the products of waste of tissue in the blood may deprive the brain of its proper supply of good blood.

[The next number will contain an article by Dr. Peters on Partial Cerebral Anæmia.]

ART. V.—*Dermoid Cysts of the Ovary.* A paper read by ROBERT STONE, M.D., before the Yonkers Medical Society November 3, 1876.

In 1858 Lebert published in the Prague Quarterly for Practical Medicine, Vol. 60, some extracts from his first work, and there designated, under the title "Dermoid Cysts," those sacculated tumors which contain one or more of the component parts of the skin, and in which are also met cartilage, bone, teeth, nerve matter, and complete nerves in rare cases, and smooth, muscular fiber. To Lebert belongs the credit of suggesting this brief and descriptive title. Leblanc, however, in an essay published in 1831, speaks of a dermoid cyst at the basis of the cranium of a horse. Kohlrausch in 1843 gave an extremely exact description of the microscopic condition of formations of this character, in which he distinctly points out the analogy of the same to the skin; and Steinlin, of Zurich, says, in an excellent treatise published in 1850: "The fundamental change in fatty cysts of the ovary consists in the production of a tissue which is completely similar to the skin, and the contents of the cyst correspond with the secretions of the skin and its epithelial formations." From this description to the title dermoid cyst is but a step.

Dermoid cysts have generally a thin-walled cystic membrane, and the internal surface is usually smooth, but at times uneven through circumscribed elevations, and presents, either throughout or only at certain points, a cutis-like structure. The outer layer of the internal membrane consists of thick layers of pavement epithelium [ciliated epithelium has thus far been observed in a few cases only]; next of non-nucleated, scaly elements, upon which follow nucleated and finally rounded cells, precisely as in the outer skin. Beneath this is seen a cutis-like layer of connective tissue, whose surface, bordering on the epidermis, at times grows into papilla, which, however, never present the natural, regular formation in rows, and which usually present also irregularities in length and thickness. The connective tissue also is looser, and its fibers here and there separate to embrace fatty tissues. In this envelope, which so completely resembles the cutis, we often meet with the completed attributes of the latter. The dermoid points are frequently hairy. The hair arises from a distinct hair follicle, into which sebaceous glands open, generally near the upper end of the follicle. Besides these sebaceous glands, which are often of great size, one-third to one-half to one millimetre and over in length, and which are connected with the hair follicles, there are others which open directly upon the inner surface of the cyst. Besides sebaceous glands, sudoriparous glands are also met with. Since Kohlrausch, who first observed them, many others have confirmed their presence.

Many dermoid cysts of the ovary contain within their walls cartilage, and less often bone and teeth, and at times condylomata. Dermoid cysts are filled with a soft, grayish or yellowish butter, or hardened, fat-like matter, with which are frequently mingled balls of matted hair. The microscope shows free fat, broken down pavement epithelium, free nuclei, fatty, degenerated epithelium, and crystals of cholesterine ; the last in such masses as to give the whole a glittering appearance. The hairs present the greatest variety in thickness; at times they are free, at others attached to the walls of the cyst at various angles. Their color does not generally correspond with that of the head and pubes. Andral observed in an ovario-dermoid cyst in a negress hair of a delicate, reddish yellow, and of the fineness of a white infant's hair. The same cyst may contain hairs of different colors, and even the same hair may present different colors in itself. The length of the hairs is very variable. The longest noticed by Andral was six inches long. Regnaud observed them over one foot; Busch, sixteen inches; Thiebaud, twenty inches, and Tyson two and three-fourths feet long. Generally, however, the hairs are short; one to two inches, or even shorter.

Authors agree, in general, that blonde or reddish hairs are most frequent in ovario-dermoid cysts.

Teeth, more or less developed, are not infrequently met with in these cysts. In the one hundred and twenty-nine cases collected by Lebert, sixty-three contained teeth; and in two hundred and forty-five cases reported by Pauly, forty-six contained teeth. The case reported by Ploucquet, and subsequently more minutely described by Authenrieth, is celebrated. From the right ovary, weighing over twenty pounds, of a woman aged twenty-two, who had never borne children, over three hundred teeth were removed, and this was hardly the half of the number present. Schnabel found over one hundred in a cyst from a young girl of thirteen years old, who had not yet menstruated.

Bone has also been met with, as well in the walls as in the interior of these cysts. Heschl describes several pieces of bone which were connected by a false joint, formed of periosteum and tough fibrous tissue. The bony matter is truly osseous, viz., it presents a medullary canal and concentric layers, only, according to Klob, the bone corpuscles are rather larger and fewer than in normal bone. Dermoid cysts have also, at times, been found to contain nerve fibers and ganglionic cells, which correspond more or less with the cerebral matter. Virchow found in one case a nerve mass similar to the cerebellum. Rokitansky observed in one case an independent nervous apparatus, arising from a ganglion in the interior of an ovarial cyst, which was provided with a dermoid covering. The reddish ganglionic mass lay next the base of the bony mass in a capsular space in the cyst wall. The nerve branches emanating from the ganglionic mass branched out into the bony growth to its extremities like the nerves of the fingers, and gave off branches also to the dermoid covering of the cyst. Not less interesting is a case reported by Friedreichs, of Würzburg, who found at the post-mortem of a woman aged thirty-eight, who had died of Bright's disease, in the left ovary a tumor of the size of an orange, composed of two cysts. One of these cysts was dermoid. Large, thick bands of broad, double-sheathed nerve fibers at one point, at another a whitish layer of parallel, thin varicose nerve fibers, mingled with large uni or bipolar, and more or less pigmented, very friable, ganglionic cells, with large round nuclei, interspersed with a fine capillary net-work, and held together by a delicate but distinct neuroglia. Such, in brief, is Fredreich's report. Other recent observers have reported the presence of nerve fibers in ovario-dermoid cysts. Axel Key observed the following case, which is of some interest: At the post-mortem of a woman aged sixty-eight, who had suffered from habitual constipation, and for the last six years from abdominal pains, and periodical attacks of cold rigors, Key found a dermoid cyst of the ovary of the size of a man's head. A microscopic examination of the inner surface presented a cutis-like structure; the papillæ, however, absent, but sebaceous and sudoriparous glands were evident. From the side of the inner wall there extended a soft mass, hardly four inches long, which resembled an abortive fœtus. It had a rounded, convex side, which corresponded to the back; bone, teeth, and nerve tissue were present. The nerve tissue was found in a bony cavity, which, says Key, may be regarded as a sort of cranium.

The nerve matter in these cases is almost invariably connected with the walls of the cyst, and from thence projects into its interior. It is, in fact, doubtful whether nerve fibers and ganglionic cells occur, independently, in the cavity of these dermoid cysts. Most authors mention striated muscular fiber as also occurring in these cysts, the authority resting upon Virchow (Deutsche Klinik, 1859). Pauly (on Ovarian Dermoid Cysts, 1875) is of the opinion that the cyst in question, said to contain striped muscular fiber, although in fact containing a neoplasm of that character, was not itself a true dermoid cyst; indeed, Virchow, in his second case (reported in the Transactions of the Physico-Medical Society of Würzburg, 1859), designates the cyst as a myosarcoma. Smooth muscular fiber has been found in these dermoid cysts, referred to by Virchow as errectores pili. As to the occurrence of *nails* in the ovario-dermoid cysts, Benda, in his dissertation, "De Ovariorum Degeneratione," 1844, writes: "Nails have also been found, at times, in dermoid cysts." Lebert, "Traite d'Anatomie," says: "In two cases there was observed a horny substance, which, in one of the two, had a cylindrical form, resembling the nails." Cruveilhier, in his Atlas, No. XVIII., fig. 3, gives an ovario-dermoid cyst which presents two horny tubes. If, indeed, nails are found in these cysts, they must be regarded as exceedingly rare. Finally, it may be added that in dermoid cysts in cows, sheep, and in birds, hair, wool, and feathers respectively have been observed.

Ovario-dermoid cysts are generally simple, or almost always but one cyst is contained in each circumscribed tumor. Serous and colloid cysts may also be combined with them. Lebert reports this combination in 17 cases. The combination of colloid cysts with dermoids in the ovary has long been observed; so frequently, that Autenrieth, in his Archives, vol. 7, 1807, asserts that bone and teeth are found only when a brown, limpid gelatine, or when a whitish and gradually toughening mucous is present in the cyst, which may well be termed colloid. Autenrieth deduces therefrom that this occurs as in the normal formation of bone and teeth, since all normal bone arises from hardened gelatinous material. The teeth, however, arise in sacculi filled with fluid or thickened gelatinous matter. Virchow adds: "We may most probably infer from the frequent occurrence of this accidental formation that the presence of the latter in the ovary excites the colloid degeneration of the same."

Pauly, contrary to the views of Lebert, does not regard the ovary itself as the most frequent location of dermoid cysts. For, although Lebert in 188 cases of dermoid cysts found 129 ovario-dermoid, it is certainly because the ovario-dermoid cyst is more generally described than the more frequent dermoid in the sub-cutaneous tissue. As to the especial preference towards the right ovary, as deduced by Lebert from his statistics, Pauly's cases do not bear out the assertion. Lebert found in 64 cases, where the diseased side was mentioned, the disease occurred in the right 39 times, the left 19, in both 6 times. Other authors differ in their opinions as to the liability of the disease to affect one side or the other in preference. Bose says: "It is, nevertheless, wonderful that especially in the left ovary such hairs are met with." Josephi says: "According to my observations, the disease affects the right as frequently as the left ovary." Hochrichter decides for the left ovary, and to this opinion Rohr also subscribes. Kehrer says: "It is not yet physiologically decided, in women, why the left ovary is more often affected than the right. Hein found, out of 16 cases of tubular and ovarian pregnancies, in more than 10 cases the left side attacked. In 245 cases of dermoid cysts of the ovary, Pauly found in 117 cases the side affected mentioned—the right in 52, the left in 45, and in 20 cases both sides involved. Comparing the cases collected by Lebert and by Pauly, not one of the cases collected by the latter being included on Lebert's table, Pauly found the disease in the right 39; the left, 19; in both ovaries, 6 times. Lebert found the disease in the right 52; in the left 45; in both ovaries, 20 times. Pauly regards the occurrence on either side as accidental, and believes it impossible to find a physiological cause for the predilection of the disease for either side.

Some authors have further laid especial stress upon the assertion that ovario-dermoid cysts occur more frequently in the unmarried or the married and childless females. Baker Brown (1862) asserts its recurrence especially in the unmarried, and in the largest number of cases where the disease occurs in the married, it happens in those who had remained unfruitful—a remark which Churchill controverts. Pauly gives 118 cases where the question was noted whether the patient was married or unmarried; of these 49 were unmarried and 69 married. Of these 69 only a few cases are noted childless, the number not exceeding 5. But, on the other hand, in many of the cases the more exact annotation is absent as to whether children had followed the marriage or not. On the other hand, we find in 34 cases children are noted, even as many as 9 living children in one case, and 11 in another. Tilt, in the London Gazette, September, 1851, gives an interesting table which is apropos of the question in hand. He collects the observations of Lee, Cheran, Bluff, and his own, and finds chronic ovarian affections in 290 cases in married women, and 167 cases in unmarried. The origin of dermoid cysts of the ovary is a question whose solution has occupied the acutist minds in past and present times. The opinions regarding these cysts among earlier writers have been most varied, certainly no vague theory of the middle ages will appear overdrawn or romantic, when we remember that within a generation Velpeau himself, before his assembled clinic, on introducing a young man of 27 years, from whom he had removed, some four months before, an exactly diagnosed dermoid cyst from the scrotum, gave this resume. The fistulous opening which the cyst presented externally may be nothing less than the anus of the fœtus, the yellowish green mass in the extirpated cyst meconium. The bones which he found within the cyst he regarded as corresponding, the first with the scapula, humerus, and clavicle; the second presenting a doubt between the ilium and sacrum, and the third corresponding with developed fragments of the vertebral canal.

The first report of a dermoid cyst of the ovary occurs in a work by Johannes Scultetus, Nuremberg, 1659. These cases were in ancient times attributed to malefic influences, and the devil was always supposed to have had a hand in their production. A more harmless view was certainly that which attributed these growths as a punishment for sin. In fact, the case is related of a man named Ludwig Roosel, of Flanders, who, after making sport of his wife's labor-pains, was attacked with a swelling on the right femur, which, after persisting for nine months, ruptured and gave issue to a male fœtus. We learn from this account at least that among the judgments of Heaven upon man pregnancy was attributed under certain circumstances, and, also, that dermoid cysts have been baptized as products of conception. In a catalogue issued in the year 1728, "The Breslau Collection," is to be found, under artcle 17, "The wonderful remains of the blighted product of impregnation which was carried for 20 years." At that time the dermoid cysts of the ovary were regarded as the remains of a fœtus. Astruc was of the opinion that a previous coitus was needed for their production. An ovum, with its membranes, is retained in the ovary until it becomes steatomatous, while the hair, which is less destructible, retains a species of growth like the hair in the dead body, which is capable of a certain growth. Later on—a sign of advancing knowlege—further pathological and anatomical causes were sought for this still wonderful formation. Beginning with Josephi, professor of anatomy, etc., in Rostock, we are presented with seven varieties of possibilities which might lead to ovarian pregnancies, that is, to ovario-dermoid cysts.

1. The outer membrane of the ovary is too firmly attached, or is diseased.

2. The graafian vesicles do not all protrude equally from

the cellular tissue of the ovary. If one deeper seated is impregnated it can hardly reach the Fallopian tube, and ovarian pregnancy results.

3. Fear, anger, annoyance, etc.; which about the time of, or at the instant of, impregnation suddenly interrupts the orgasm, by which the highly excited condition of the nervous system is so changed that the entrance and reception of the ovum into the tube is prevented. Josephi here cites Krüger, who says (Dissertatio Pathologica Ovarii Mulierum, Göttingen, 1782): "Illicit cohabitations may be the cause and source of this evil, where, namely, the woman allows the man intercourse indeed, but in the midst of the connection, from fear of impregnation and consequent disgrace, withdraws herself, and seeks to render the act null."

4. The tube is too long or too short, and is not able fully to reach the ovary.

5. The tube is abnormally abherent to adjacent parts, so that its freedom of action is impeded or lost.

6. In diseased conditions of the tubes, where they are contracted, ulcerated, paralyzed, etc.

7. When the dentated wall either fails entirely, or where the fimbriæ are not sufficiently long, or are otherwise affected, as by serous or other tumors. One of the oldest views accounting for the presence of the hair in these cysts is, that the hair in the dermoid cysts had been swallowed by the patient, and finally found its way into the cyst. Cheston Browne (Pathological Inquiries) believed that the teeth found in these cysts had been swallowed by the patient, but that the hair was grown in sitû. Meckel is of the opinion that in young maids, as well as at times in older women, and especially in old maids, these formations may occur without previous coitus, especially in those cases where the ovaries or the uterus of old maids is the seat, partly because their moral virginity does not always keep pace with the physical, and partly because their generative organs are especially dis-

posed toward irregular formations, and partly because it is not known at what period the cyst commenced. Within certain limits it is possible to assume a lucina sine concubita, a view upon which Cruveilhier remarks: "This ingenious theory is purely hypothetical, and rests upon no positive facts." But Meckel adds expressly: "It is not possible in every case to reach its signification;" hence we must accede to the possibility of extra uterine pregnancy, a view against which Meckel previously adduced the strongest arguments. This view, presented by such an authority as Meckel, was received by most of his contemporaries. Others held the dermoid cysts as products of fruitful connection, followed by degeneration of the ovum, and named these tumors "Hair-moles." Cruveilhier and Bricheteau, and with them many others, regarded as possible two modes of origin of dermoid cysts, according as they were observed in adults or in children. Cruveilhier says: "A uterine conception takes place; an adherence is established, during the first period of the conception, between the walls of the cyst and the embryo. Whereupon a more or less complete disintegration follows. Only the skin remains, and as we have the skin, we have a ground for the production of hair, thence hair cysts. If portions of the maxilla or other parts of the skeleton are found, these have escaped the general destruction. But Cruveilhier himself feels that his theory does not fit the cases of young maids and men. Then the hair cyst is the débris of a fœtus, contemporary with the individual in whom it occurs. Tumiata adopted this latter view, because the normal structure of the parts proves that they can not develop irregularly or by chance, but must be produced from germs originally present. Furgusson appears to assent to this view when he says in the earlier fœtal existence nature is arrested in order to fully develop the second fœtus.

It is, indeed, necessary to reach a satisfactory theory on this subject, especially in the interest of virgins. According to the old theory, if by chance a dermoid cyst of the ovary perforates a neighboring organ, and a portion of its contents passes out externally, the unfortunate patient, however innocent, would be at once brought to shame. Spencer Wells relates an interesting case to which he was called, and where he found the family plunged in shame and sorrow over their unfortunate daughter, because she had passed several portions of bone per annum. We thus see that the theory of extra-uterine pregnancy in these cases works its evil influence even in our day.

Recently Klebs had given his assent to the view that we have in these cases a fœtal inclusion, which owes its origin to a splitting of the germ. The merging of the one ovum into the other occurs before the formation of the allantois; hence the fœtal parts are seated immediately upon the cyst wall. In the 4th edition of his work, issued last year, Klebs, however, returns to the views held by most authors of to-day.

Aliqui, in the Gazette des Hospitaux, No. 58, 1857, reports a case of a considerable tumor, composed of ten embryonic sacs-dermoid cysts of both ovaries, in a woman aged forty-nine, four cysts on the right and six on the left, and finally lays down the following laws regarding this, as he says, "apparently repeated intra-ovarian pregnancy": The impregnation of the ovule in the ovary is possible through the investing membrane. The intra-ovarian pregnancy may be repeated many times—in this case, ten times. The separation of the ovule is not necessarily connected with menstruation. Pelikan, especially, combats Rokitansky's views, and seeks an explanation in the further development of the numerous embryonic elements in the connective tissue of the ovary. Where the basis of the different development of the originally similar elements lies, "is, nevertheless," says Pelikan, "entirely obscure." Steinlin, of Zürich, who had an opportunity of investigating ovario-dermoid cysts in a fresh state, writes as follows regarding their origin: "As the first foundation of a fatty cyst, we find in the ovary, at the point of a graafian vesicle, a small, flesh-like tubercle, about the size of a hempseed, which is with some difficulty removed from its cyst, and which I regard as the original sac of the graafian follicle. Later on this small tubercle becomes loosened from the sac as far as the point where it is attached to the sac by a broad pedicle. At this spot vessels enter, which are dispersed through the tubercle in loops. The sac remains every where close-fitting, and the intermediate space is recognized only as a fine fissure. Somewhat later this space is filled with a thin layer, and we find also that the sebaceous glands have developed.

The explanation of the bony formations in these ovario-dermoid cysts presents greater difficulties. Ritchie attacks Steinlin's essay at this particular point, and rests his views on the fact that these bony matters found in the ovary present true osseous structure under the microscope, while bony formations in the skin of crustaceous animals are nothing more than thickened epidermis and calcareous deposits. Ritchie also asserts the hypothesis, with Baillie, Meckel, and Voigtel, that every dermoid cyst of the ovary is an ovum, which has passed through a certain gradation of development, and is a perverse attempt at pathogenesis. Elsewhere he says: "Nature, failing to make a complete fœtus, does the best under the circumstances, and may thus produce teeth, bone, and hair, which we may regard as animal vegetations." Von der Porten* says the principal facts militate against the view that the teratomo is a product of sexual engendering. It is demonstrated, by undoubted observations, that even the unimpregnated egg, under certain modes of breeding, takes on appreciable changes, which entirely agree with the laws which we gather from the transplanting of sexless sprouts in the lower organisms. The investigations of Hensen, on the breeding of unimpregnated eggs, have made it certain that the protoplasm of these eggs is in a condition to bifurcate, and to put out prolongations which may become filaments of half a millimeter and over. "The volume of these filaments," says Hensen, further, "is so great that the original ovular mass is decidedly insufficient to cover the same. In this case there must be an accretion of substance." "If," continues Von der Porten, "we grant such an activity of the unimpregnated egg, why should it not proceed further to the formation of differential cells, of tissues, and even of organs?" Lebert seeks to explain the matter by his law of "Plastic Heterotopics," which reads thus: "That simple or compound tissues, and even the most complicated organs, may be formed in parts of the body where, in the normal state, they are not to be met with." Still this "heterotopic-plastic" law brings us really no nearer a solution of the matter. Henschl, who has carefully studied the nature and formation of dermoid cysts, says: "As to the formation of ovarian or scrotal dermoid cysts, it is wisest, at present, to withhold a decided opinion. That they originally belong to intra-uterine life appears to me exceedingly probable; from what elements, however, they are generated is as yet entirely unknown." The actual solution of this question has entirely too many pretended answers for any one to be reliable.

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* In his work on Teratoma, 1873.

Mayweg (Bonn, 1868) says: "Other authors regard dermoid cysts as proceeding from changes in the epithelium, and in the theca-folliculi graafiani, and assert that they are simple retention cysts—a view which I approve, because the ovum is not necessary to the formation of the dermoid cysts; because, also, the expression 'generated' does not solve the question; and, finally, because, with a given mucous membrane provided with such an indifferent epithelium as that of the graafian vesicle, every thing is granted necessary to the formation of hair, teeth," etc. Waldeyer resumes this view as follows: "The epithelial cells of the ovary are capable of producing, in the usual manner of partition and subdivision, other partitive products, as is elsewhere the rule in cell subdivision, in which the offspring cell bears the same characteristics as its maternal cell. This essential capacity of the ovarian epithelium is comprehensible through the fact that the ovarian epithelium, en masse and singly, must be regarded as undeveloped germinative cells. If an increase of the inclosed ovarian epithelium occurs in the ordinary way, then we have, in most cases, a colloid cyst, while the proliferation in question produces, with the anomalous products of development, a dermoid cystoma. In the same manner as the sub cutaneous dermoid cysts are developed by simple involution of the skin, we may assume a like mode of formation for the much deeper-seated ovarial dermoid cysts, except that here the closure of the abdominal cavity during fœtal life comes into consideration, especially since His (Archives of Microscopic Anatomy, 1865), by his investigations, has incontestably proved that the urinary and genital passages are formed, not, as has until now been assumed, by a contraction of the middle, but from the outer germinal fold.

Pidoux, in the Transactions of the Academy of Medicine, Paris, 1857, assumes a special crasis, peculiar to these ovarian cysts, which he calls the ovario-cystic diathesis. This is so far a local process that it occurs in the ovary only. One and the same cyst may gradually assume the most varied forms and characters, which otherwise might be regarded as cysts of a differing nature. It remains to add a reference to that view regarding the formation of ovario-dermoid cysts, which appears to be very general, which refer their genesis to a segmentation at the period of embryonic development, as Remak supposes, in the cases of cholesteatomata, and Thiersch in dermoid cysts.

These cysts, says Pauly, have been compared, to use an appropriate simile of Heschl's (and not only the sub-cutaneous, but also those deeper seated), to the chance formations of geologists, *si magnis licet componere parva*, which have broken loose from the cliffs, whose composition they resemble, and from which they proceed, and are carried to a greater or less distance, being thus as much foundlings as the dermoid cysts in question. Pauly agrees with Von der Porten that this aberration theory entirely precludes the possibility of metastasis, a view which has the weighty authority of Virchow, and cites a mediastinal teratoma, which formed "metastasis" in the liver and kidneys, as well as a case observed in 1873, at the Berlin Pathological Institute, in which, after the extirpation of a simple cystoma of the scrotum, after about three months a so-called "secondary" teratoma of one of the retro-peritoneal lymphatic glands, containing cartilage, bone, and muscular tissue, was developed. It can not be denied, however, that some points of this aberration theory remain thus far unexplained; for example, the presence of products of the middle germinative fold. But, on the other hand, it greatly depends whether these parts of the middle germinative layer are to be regarded as true neoplasms, that is, belonging to the cyst, or as merely lying in the walls, that is, represent formations derived from the maternal layer. The absence of any derivatives from the intestinal layer is a matter of surprise only when we regard the dermoid cyst as the lowest stage of a fœtus in fœtu, while it is self-evident, if it be regarded as a product of the outer germinal fold, and its capsule, formed by the middle germinative layer, be regarded, as in so many like cases, as a product of irritation.

In adopting the above theories we must regard ovario-dermoid cysts as congenital. It is no stretch of imagination to assume that a person may go about for years unconscious that through some embryonic mishap, or some uterine irregularity, she carries the germs of a tumor, and that suddenly, from some favoring external cause, the development of the same is hastened and favored. According to most authors, the period of puberty, or of marriage, is the predisposing cause. It appears that, in a large number of the cases reported, at the period of puberty, or on the occasion of marriage, the patient began her first complaints. Pregnancy may also be mentioned as an essentially predisposing cause. Lebert has published in his essay in the Prague Quarterly, vol. 60, a table on the age of his patients, numbering in all 129 cases. It is evident, however, that all such statistics must be regarded as problematical. The larger proportion of the published cases have not come under the observer's notice until after the death of the patient, and in by no means every case, where a post-mortem reveals a dermoid cyst of the ovary, is the latter even the predisposing cause of death. These statistics are of value only as pointing out the extremes of age at which these cysts may appear; and here we might find a strong proof that dermoid cysts are congenital if they are found in very young children, and even in the fœtus. The extremes in the age of such patients teach us how long such a dangerous germ may lie unperceived and undeveloped, when, in such cases, the predisposing cause of further development of the germs fails to present itself, or when the latter has not succeeded earlier in undermining the patient's health.

We may here mention also an observation suggested by Prof. Freünd, of Breslau, viz., the status infantilis of the genitals with ovario-dermoid cysts. As soon as this point has been noticed more precisely in a larger number of cases—even intra-vitam as far as the investigation is possible—we shall be better able to come to a decided conclusion. The great majority of reported cases are obscure on this point. In the following cases the condition of the genital organs is noticed: Baillie's Philosophical Transactions, Vol. I., 1789, reports the cases of two girls, the one of 12½ years; the other of 19, where, besides the intact hymen, the presence of which was considered of great importance under the prevalence of the extra graviditas theory, it is especially mentioned that the womb was smaller than usual. Meckel says, in Vol. II. of his "Pathological Anatomy": "In external tumors of this kind, which are attached to a pedicle [the author here refers to ovario-dermoids exclusively] the uterus is much smaller than normal." The case of a woman, aged 40, previously described by Meckel, belongs to this category also. Spencer Wells refers to an unmarried patient, aged 18 years, operated on August 1, 1870, who presented a dermoid cyst of the right ovary, where the uterus and left ovary were barely developed. To the above belongs also the case of Hodgkin (Catalogue of the preparations in the Anatomical Museum of Guy's Hospital, Section 8, 1823), and one of Brodie's, in a woman aged 27. The same in cases from Brüch and Pelikan; the cases are, however, not very minutely reported. In May, 1874, Pauly had the opportunity of observing a patient, aged about 40 years, in Freünd's clinic, with an ovario-dermoid cyst, which presented a striking status infantilis, as regards the genital organs.

ORIGINAL LECTURES.

Art. VI.—*A Lecture on the Precautionary Management of Communicable Diseases.* By Fessenden N. Otis, M.D., Clinical Professor in the College of Physicians and Surgeons and Visiting Surgeon to Charity Hospital, New York.

The word communicable in this relation is intended to embrace all diseases which are capable of being transferred from one human being to another, either by contagion or by infection. Although these terms are used, in a general way, to express the same meaning, it seems to be desirable, for convenience of classification, to concede to them their original and natural significance, viz., to limit the term con-

TAGION to diseases which are communicable only by direct contact with the disease itself, or through materials which have been subjected to such contact, and to apply the term INFECTIOUS to diseases which are capable of communication through the medium of the atmosphere by inhalation.

One of the chief responsibilities in the care of individuals suffering or afflicted with any communicable disease, is in the prevention of its spread to healthy persons. It is in the province of the physician to instruct in this matter when cases are brought to his notice, but it often occurs that contagious disease exists without such marked discomfort as would seem to necessitate professional aid; hence it becomes desirable for all who are entrusted with the personal care of the sick to be able to recognize the early invasion of communicable diseases, and to know how best to neutralize the contagious element, both for their own protection and for that of others more or less exposed. We shall first consider the local contagious diseases—diseases of the skin—as follows:

Scabies—pediculi of various kinds.
Tinea, or Ring-worm—of various kinds.
Porrigo—favus, or scald-head.
Pityriasis—or liver-spot.

These are all dependent upon parasites, scabies and pediculi being animal organisms, and the remainder due to vegetable growths. In general terms, all pimples and itching eruptions should be suspected as capable of being communicated, and the individual suffering be kept from contact with others, and from using in common any articles of dress or the toilet, until the opinion of a physician can be obtained. Scabies, or itch, is due to the presence of an insect which burrows under the epidermis, or scarf skin. It is especially active at night, and, as a consequence, the irritation which it causes is greatly increased at this time, and, besides, it is then more apt to be communicated, either by direct contact with a person affected or through the medium of the bed clothes.

The clothing of the affected person should be kept carefully separated when such disease is known or suspected; that which has been in recent use should be subjected to a baking process, or thoroughly boiled, in order to destroy the insect and its larvæ which may have been entangled in folds of the garments or bedding, or in the texture of the material. This care should be kept up until a proper treatment shall have thoroughly freed the individual from the presence of the insect. It will be in the province of the nurse, also, to recognize the presence of pediculi—vulgarly known as head and body lice—which not unfrequently produce symptoms and appearances similar to those of scabies, and which may be contracted through the medium of public houses and conveyances, and in other ways, even by children and adults of cleanly and refined habits. The treatment of the clothing in such cases should be the same as for scabies, and a lotion of the officinal *tinctura delphini* freely applied will prove an effectual insectiside.

Where they are localized on the body, an ointment of ung. hydrargyri ammoniati, or white precipitate, will be more effectual. Tinea, or ring-worm, is due to a vegetable parasite, which has its origin from a similar disease in animals. Thus it may be acquired from cats or dogs, and also from cattle, as well as from contact with human beings afflicted with ring-worm. The knowledge of this method of acquiring the disease would have prevented the spread of it through an entire family, including an infant of three weeks, mother, and nurse in attendance, as occurred in a family subsequently under my care, and where the disease was distinctly traced to a pet black and tan terrier suffering with the "mange." The appearance of a circular or crescentic scaling spot of eruption should receive prompt attention. Every precaution should be used to prevent contact with the spot, either on the part of a patient or others, and the notice of a physician at once be attracted to it.

Sycosis, mentagra, or barber's itch, is of the same nature, but is confined to the face of adult males. It presents the general appearance of aggravated cold sores. It is related of this disease, acquired by a man from a cow, that the eruption in the beard was a true sycosis, while on the skin adjoining it had all the appearance of the ordinary ring-worm. It is most frequently communicated from one human being to another through the operation of using shaving apparatus in common. It should be borne in mind that contact with such faces, especially by children, is likely to produce ring-worm. There is still another contagious disease communicated from animals, called porrigo, favus, or scald-head. This occurs usually on the heads of children as a light-yellow cup-shaped pustule, and when at all extensive it has a distinct mousey smell, and it is supposed to originate in mice. Authentic instances are related where a mouse has given it to a cat, from the cat transferred to a dog, and thence to a child, etc. A knowledge of the possibility of contagion from such sources will often be sufficient to prevent acquirement of the disease.

The ring-worm commences as a red spot, covered with fine bran-like scales. As the spot enlarges the color gets fainter in the center, so that it soon comes to look like a ring, inclosing healthy skin, sometimes increasing to a diameter of four or five inches. Often fading out at one or more points, the ring becomes imperfect, presenting, perhaps, the crescentic form, or, growing upon others, produces figures of 8 and other gyrate forms. They are most often seen upon the face, neck, or arms. Of the same nature is a red scaling patch which sometimes appears on the inner upper aspect of the thigh, and frequently as large as one's hand. Again it is found upon the head, especially on children, causing a circumscribed loss of hair. All these forms of tinea are caused by the same parasite—a vegetable spore called the *trichophyton*.

The last and least important in the list of parasitic diseases is Pityriasis, or Liver-spot. This is a copper-colored eruption, chiefly of the body—occurs in small spots and patches, covered with fine branny scales. It is not usually the cause of much annoyance, except from its unsightliness. The best preventive of contagion is a free application of 10 per cent. solution of salicilic acid.

We shall next consider contagious diseases of mucous membranes. These are leucorrhœa, simple and specific, ophthalmia, syphilis. Leucorrhœas are inflammations of mucous membranes, vaginal or uterine, dependent upon various causes, and characterized by a purulent or muco-purulent discharge. This may be profuse, and yet unattended with any appreciable degree of irritation. In such cases the presence of a *contagium* is very rare; but where it is characterized by *heat and pain*, whatever its source of origin, it may, and is quite likely to, have acquired a contagious element, and thus have the power to communicate a similar grade of inflammation to any healthy mucous membrane with which it may be brought into contact. By the term *simple* contagious leucorrhœa is to be understood an ordinary idiopathic, or self-generated leucorrhœa, which by various influences has been so intensified that it has acquired the contagious property. The term *specific* leucorrhœa is applied to those acquired by contagion.

The varied character which the simple leucorrhœa may acquire, is best appreciated by the observation of causes of the infantile leucorrhœa which is seen in young girls, and even in infants, and originating from an irritation in the contiguous structures of the rectum, from the pressure of ascarides, or pin-worms. The discharge becomes profuse, and of a greenish yellow hue, indications of a high grade of inflammation. The irritation caused by its passage over the external parts is often such as to excoriate the mucous membrane. The application of it by means of sponges, towels, etc., to the parts of other and healthy children, will at once set up a similar inflammation, and a drop, even an infinitesimal molecule, of the discharge being conveyed to the conjunctiva, the mucous membrane of the eye, will set up a purulent ophthalmia, which may go on, if not properly arrested, to the entire destruction of sight within three or four days. It will then at once be seen that the utmost care is necessary in the management of such, and of all cases of inflammatory diseases of mucous membranes. The care of children afflicted with leucorrhœa is one of the greatest responsibility. In cleansing the parts, the use of sponges should be avoided, and pledgets of cotton (which has previously been boiled, to free it from greasy particles, and make it more readily absorptive) should be used. This should be wound around little wooden sticks (a match will answer very well), and after use be at once cast into the fire. Soft cotton or linen rags may be used the same way, but no articles which have been used in washing or wiping the diseased mucous surfaces should be used a second time. In all cases, previous to bringing *any* material in contact with the inflamed parts, they should be gently irrigated with warm or tepid water by means of a syringe. In the cleansing of clothes stained by the discharge, the danger of handling them should be borne in mind. They should be carefully separated from those of other members of the family and soaked in water, to which a small quantity of crude carbolic acid (say three drachms to the gallon of water) has been previously added. They may then be cleansed and boiled in the usual way. The care of children afflicted with purulent discharges of the mucous membrane of the eye should be equally exacting; as this latter affection is more especially in the province of Dr. Pooley, who is to instruct you in the manner of nursing, in diseases of the eye, I will not go more fully into the mode of caring for such cases. I now come to the consideration of the most important of the contagious diseases of mucous membranes—Syphilitic disease. This is different in its nature from any yet spoken of. All the other diseases mentioned are of purely local origin: this is a constitutional disease, one of the local manifestations of which, is found in mucous membranes. It originates in a local lesion, the result of inocculation of the *contagium* of syphilis. This is believed to be a human germinal cell, which has, in some mysterious way, acquired the power of gaining access to the human organism, and by rapid proliferation or increase in the system, and by a highly contagious property with which it is invested, to vitiate the blood of the individual affected, imparting to it all the contagious and vicious properties of the original cell from which it was derived. During the active stage of this disease, which lasts for many months, all its products are highly contagious. One of these is a peculiar superficial erosion, or ulceration, of the mucous membrane of the mouth. It may occupy an extensive surface, and it *may* not be larger than a pin's head, and yet when it is present it is capable of furnishing a *contagium* or contagious principle which, if brought in contact with an abrasion in a healthy person, will set up a disease of the same kind in the person so inocculated. It is not necessary that the lesion in the mouth shall come in contact with the abrasion; the diseased germ may be transferred from the diseased to the healthy through the medium of a spoon or a pen-handle, or even (as has been known and recorded) of a stick of candy. It is, then, necessary to use the greatest circumspection in the care of persons known or suspected to suffering from syphilitic disease. In a special manner in the care of children affected with syphilis, hereditary or acquired, is care to be exercised with regard to this form of lesion. It has, in numerous recorded instances, been communicated by a kiss and by toys which were used by children in common.

All open sores or abrasions, especially about the mucous orifices of the body, in the persons of the syphilitic, may be reckoned capable of furnishing a contagious principle, and hence the same rules in regard to cleansing and dressing which were given in the matter of specific leucorrhœa holds equally in the case of syphilitic disease. A circumspection in regard to the different modes by which syphilis may be communicated should be exercised, which should be vigilant and constant, and continue during the entire active stages of the disease.

Prominent among the diseases resulting from a local contagion is Pyæmia, or pus absorption; the result of a pernicious influence upon open wounds or abraded surfaces, induced either by some unhealthy condition arising in the person of the sufferer, or by contact of wounds and suppurating surfaces, or an atmosphere impregnated with the emanations from pyæmic patients, or by contact with sponges, dressings, etc., or the fingers of attendants, professional and lay, that may have been in contact with the pyæmic *contagium.* It may also be set up from the influence of erysipelas, the *contagium* of which is known to be capable of inducing pyæmia. In addition, then, to the care which you will exercise (in view of the grave character of the pyæmic accident) in insisting upon the most rigid application of rules laid down in regard to dressings, utensils, etc , in other contagious diseases, the *hands* should be submitted to a thorough disinfection by washing in water, to which the tincture of iodine has been added, sufficient to color it deeply, say a teaspoonful to a quart of water,* or a forty-grain solution of carbolic acid. The salicilic acid is lauded for its property of destroying living organisms, and also the products of decomposition. The ten-grain solution, which has the advantage of being free from odor, is powerful to remove all smells arising from decompositions which are not associated with sulphureted hydrogen. Least of all should it be forgotten that the influence of an erysipelas may determine an attack of pyæmia; and, if possible, all attendance upon patients with open wounds by one attending upon a case of erysipelas should be prohibited entirely. At least no contact should take place, except after the most scrupulous disinfection.

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* London Lancet, June 12, 1875, page 829.

We have also another grave malady of local origin, viz, Septicæmia, or blood poisoning. This, in cases of wounds and open suppurating surfaces, is considered due to the absorption of putrid or decomposing animal matter, blood clots, tissue shreds, etc., from other wounds, or any decomposing animal material. It is the result of direct contact of such matter to the wound or other open lesion, or through particles of the contagion which are in the air. The septicæmic action once set up, from whatever source, a new focus of contagion is established, requiring as complete isolation of the patient as possible, and the disinfectants before spoken of in pyæmic trouble should be brought into play. Both of these diseases are liable to attack recently confined women, either from some local predisposition or condition, or from a contagion brought by the persons in attendance from cases similarly affected.

The fact that both septicæmia and pyæmia may be communicated to a recently confined woman by a person who has been in contact with similar diseases, and also by contact with erysipelas or other unhealthy inflammations, should be fully appreciated by all in charge of puerperal cases, and especially by the professional nurse.

In this connection, also, it will be in order to speak of Puerperal Fever, which by some is a generic term, used to express all inflammatory accidents occurring after child-birth, but which by others is esteemed a distinct disease, both infectious and contagious, of a most deadly nature, and hence is capable of being transmitted through fomites or infected materials, such as the clothes of persons who have been in attendance on puerperal-fever cases. Dr. Fordyce Barker, who maintains the individuality of puerperal fever and its infectious as well as its contagious character, cites an instance from Dr. Holmes:* "A midwife delivered a woman in December, 1830, who died soon after with Puerperal Fever. In one month from this date the same woman delivered thirty women, residing in different parts of an extensive suburb, of which number sixteen caught the disease, and all died. The other midwives, connected with the same charitable institution as the woman already mentioned, are twenty-five in number, and deliver on an average ninety a week, or about three hundred and sixty per month. None of these women had any puerperal fever. Yet all this time this woman was crossing the other midwives in every direction—in the very same quarters where her cases of fever were happening."

In view, then, of the deadly nature of the diseases known as pyæmia, septiæmia, and puerperal fever, and the possibility of their communication from the diseased to the healthy by the hand, or through the presence of the nurse, the terrible responsibility resting upon her, after attendance upon such cases, also including cases of erysipelas, will be appreciated, and every means that is known to science should be eagerly sought and applied. In addition, then, to all the care and local disinfection previously spoken of, the clothes of the nurse in such cases, even the shoes and the hair and under the finger nails, should be thoroughly disinfected, and the body bathed in a disinfecting solution before contact with other puerperal cases. The clothes, if woolen, should be exposed to a heat of 200 to 250° Fahrenheit, and all washable garments should be soaked in a 40 per cent. solution of carbolic acid, and afterward washed in the usual way. Exposure of the person to an atmosphere in a close room in which a few scales of iodine have been burned is said to disinfect promptly and effectually.* And further, it is a duty to allow as much time to elapse and as much contact with the outside air, before taking charge of new puerperal cases, as is possible, and never less than one or two months in cases of well-determined puerperal fever.

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* Barker on the Puerperal Diseases, page 465.

Erysipelas may be communicated through the medium of bed-clothes and bedding to healthy persons. The bedding in all cases of contagious and infectious diseases should be of straw, and at once burned after use. It should be changed once a week, at least, during the continuance of the disease.

Diphtheria.—This, when once established, is a contagious disease, and the contagion may collect in a room where persons have been ill with it through lack of proper ventilation and disinfection, so that months after the disease may be communicated thereby to healthy persons occupying the apartment. The disease is confined to mucous membranes, or open wounds or abrasions, and is supposed by recent observers to be the result of an evolution of minute vegetable organisms, producing the local manifestations, and these, reacting in some way upon the mass of the circulaton, produce the systemic poisoning. What chiefly concerns us at this time is the known contagious property of diphtheria. It is acquired chiefly, if not solely, by contact with the secretions of the mucous membranes, which are the subject of the disease. A rigid separation of children or adults affected with it from all not required for their care is essential; and a thorough application of disinfectants to all materials used for applying medication, or in wiping off the diseased spots, must be made. Solutions of chlorine and saturated solution of the salicilic acid (which is shown to possess a special power in destroying animal or vegetable organisms) give promise of being of great service in preventing contagion from this disease. The time required for the development of diphtheria after exposure is laid down by Oertel* as from two to five days, and he instances two cases where the disease was communicated by kissing, in which it appeared in two days subsequent to the exposure.

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* Dr. Williams in Lancet, June 12, 1875, p. 329.

Typhoid fever, cholera, and dysentery have in common a limited contagious element. Conclusions from the most complete and recent investigations in regard to the origin and mode of propagation of these diseases would warrant the belief that it is through the dejecta or alvine discharges, and in the discharges from the bowels *alone*, that the contagious element is transmitted; and, further, that it is not in the *fresh* discharges that the contagium is present, but that a process of fermentation is necessary to its development, which requires some time. The chief care, then, to prevent the spread of these diseases is to be exercised in thoroughly disinfecting the alvine discharges immediately that they are evacuated, and also to subject to the same process all utensils or materials of bedding and clothing that have been in contact with the excreta. This is most easily and thoroughly done by having constantly standing in the vessels used for the reception of such excreta a sufficient quantity of saturated solution of the sulphate of iron to cover the same, or to sprinkle freely the powdered sulphate over the recent discharge, and to wash the clothes or other materials stained by it with the solution as soon as may be after soiling, and also to use a weak solution of the same in washing the hands of the attendant after each exposure. Beyond this, and attention to free ventilation of the rooms which the patient inhabits, nothing farther will be required to prevent the spread of these diseases.

PART SECOND.

Infectious diseases, or those which may be acquired through the medium of the atmosphere by inhalation. A word in regard to their origin.

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* Zeimssen Practice, vol. 1, p. 595.

There are two classes of causes that have been claimed for infectious diseases. The one is in the nature of a zymotic action or ferment, and therefore due to chemical changes; the other due to the generation of living organisms, thus claiming a vital nature. The vital theory of the infectious principle, the *contagium vivum*, is held at the present day by the majority of recent investigators. Now, in order to present most forcibly the measures necessary to be pursued in combating the influence of the infectious principle, it will be well, it appears to me, to spend a few moments making you intelligent in the matter of the accepted mode of their development and propagation. Investigations conducted through the aid of the microscope have shown that the lowest forms of animal and vegetable organisms are quite similar in appearance and behavior. The living organisms, then, which have been found associated with the contagious secretions and emanations of infectious diseases are not in this way determined to be certainly of animal or vegetable origin; but, while the question in regard to some varieties is still unsettled, the weight of evidence seems to be in favor of the claim made by Lionel S. Beale and others, that they are degraded forms of living matter derived from the human organism. In all cases the disease germ is shown to be a living particle, varying in size from 1–3000 to 100–1000 of an inch in diameter. The white blood corpuscle, which is the integral type of the healthy human germinal matter, is 1–300 of an inch in diameter. It is a jelly-like particle, capable of movement, of transporting itself by stretching out a portion in a given direction, and drawing the residue onward in this manner. It is capable of absorbing non-living material, by surrounding it, incorporating it into its substance, growing thereby. It is capable of multiplication by sending out processes, which, becoming detached by a vital movement, assume at once all the powers and properties of the original granule. The disease germ, it is claimed, is thus propagated in the individual, the subject of an infective disease, until the entire mass of the circulation is vitiated. The property of contagion or infection being conceded to such particles, it becomes important to consider their power of movement, and the means by which they may be transferred from an individual in whom they have been developed to healthy persons. Mr. Beale says of these living particles, "that they may transport themselves from place to place; they may insinuate themselves through the narrowest aperture, or creep through very minute fissures and channels; they may climb through water, *and there is even reason to think they may move upward through perfectly still air*, by virtue of their capacity for vital movement." This inherent power being recognized, and the minute proportion of the disease germ being borne in mind, as well as capacity of infinite and swift multiplication, it is easy to see how diseases dependent upon the induction of a vital *contagium* may be carried into the circulation of a previously healthy or a predisposed organism.

The emanations from the lungs, from the skin, and from the excreta of a person, the subject of a truly infectious disease, become the media through which disease germs are communicated to the air, and, through it, to persons and materials, contiguous as well as in contact, bedding, furniture, floors, walls, ceilings, in some cases clothes, *even through them*, and possibly to distant apartments and places. There are, fortunately, great differences in the activity and vitality of disease germs of different diseases. With the mild forms of infectious disease are associated disease germs whose influence in disturbing the economy is small, and power of infection is weak and limited. Among these are measles, whooping-cough, mumps, roseola, and varicella, or chicken-pox. These would seem only to require free exposure of the clothes and person to the open air to prevent transferrence of these diseases to the healthy. In the case of small-pox, the *contagium* is capable of being disseminated, not only from actual contact with the person suffering, but with the clothing and all the materials, bedding, furniture, etc., which have been in relation with such person, but may be wafted through the atmosphere to surrounding houses and places, and be taken into the system of an unprotected person by inhalation. A thorough system of disinfection and ventilation must be insisted on, and an absolute system of quarantine be maintained during the prevalence of this disease. The protection of the nurse in such cases becomes a matter of the first importance, and this may be effected in such cases by *vaccination.* To illustrate the perfect protection which this inestimable boon to humanity is capable of conferring, I will cite a personal experience. Twenty-five years ago, while I was in charge of the small-pox hospitals, which were at that time dependencies of this, the Charity Hospital, it was my habit to subject myself to the simple operation of vaccination every two or three weeks, when fresh matter could be obtained. In conducting a post-mortem examination on a patient recently dead of confluent small-pox, I accidentally thrust a needle through the integumen from beneath, which, passing through a large pustule, entered my right fore-finger (being left-handed), and penetrated to the depth of fully one-third of an inch.

After sucking the wound, no further attention was paid to it until the soreness drew attention to a papule, which gradually increased for a few days, and terminated in a single, well-developed, and characterestic small-pox pustule. This soon declined, and was all the effect, local or general, which resulted from the accident; thus demonstrating the completeness of the protection which the vaccination is capable of affording when the thoroughness of the vaccination is proven. It would, then, be my advice to you always, when called to minister to a case of small-pox, to insist upon a vaccination as the preliminary step, and to neglect no opportunity for re-vaccination during the continuance of your attendance. In case you are already thoroughly protected (and this can never be ascertained, even if you have had varioloid or the natural small-pox, without trial), no harm or inconvenience beyond a trifling pimple no larger than a musquito bite can occur from vaccination with the pure, humanized or the bovine virus; while, if only partially protected, as by an old attack of the disease, or by a vaccination in childhood, you may receive the disease in its confluent form. If only a varioloid results, and this confined to only a few pustules, even these are capable of transmitting the disease in its worst form to persons not protected.

Scarlatina, or Scarlet Fever, is a highly contagious and infectious disease, which may be acquired through contact with the skin, and through the exfoliations of the skin, which are characteristic of this disease. The contagious element of scarlet fever is one of the most stable and tenacious of all the infectious poisons.

It is believed to reside chiefly, if not wholly, in the epithelial scales, which are cast from the skin, and which, in different degrees of pulverulence, are distributed from the person suffering from, and more particularly during convalesence in, scarlet fever. These may exist as scales, or even exfoliations, so large that they represent the cast of a great portion of the hand, and so small that the fine dust of the exfoliation may float through the atmosphere unperceived by the naked eye, and yet, in either shape, it may retain its contagious property undiminished for months, even years. Heldebrand, as reported by Watson, was infected by a cloak, which, after exposure to the disease, had been put aside for eighteen months. A strip of flannel has been known to be the medium of contagion after the lapse of a year. (Reynolds.) It will, then, be seen that nothing short of the complete destruction of the exfoliated particles will afford protection against contagion.

1. To avoid contagion is the necessity of establishing a

strict quarantine. This must be perfect, or it is quite useless, and a perfect quarantine is almost impossible in private families. Even the passage of an attendant through a hall used in common may result in the distribution of the *contagium:* the fine, invisible particles cling to the hair and dress, and are easily shaken off during locomotion. Fortunately they settle after a time, and become secreted out of the way of contact. The free exposure to the open air soon rids a person of it who has not been long exposed, but one attending upon cases constantly, for a long time, as in the case of nurses, requires thorough disinfection of clothes and person, not forgetting the hair and finger-nails. The furniture of rooms occupied by scarlet fever patients should (as with all contagious and infectious diseases) be as smooth, and scant, and free from hiding crypts as possible, and be subjected to frequent airings during the progress of the disease; and for protection against cold, a second room should be prepared, to which, during airing, the patient should be moved, otherwise ample protection by blankets should be secured. On the subsidence of the exfoliation (which should not be considered as complete while the least amount of branny scurf can be rubbed off) the patient may be dressed in clean clothes, and permitted entrance to the rest of the house. This, in severe cases, will not be under a couple of months. The room should then be fumigated by means of placing a small roll of sulphur in an iron vessel, and setting it on fire, closing the room tightly, and allowing it to be burned out. All the bedding and clothing should be either burnt, baked, or boiled, and then thoroughly aired. Through this and such thorough expurgation alone can the premises be certainly made safe for the residence of children unprotected from the influence of the disease by a previous attack. The small doses of belladonna recommended for prevention of scarlet fever have, probably, no value.

Relapsing Fever, and Typhus Fever.—These highly contagious forms of fever seem to be transmitted from one person to another by a *contagium* which is so subtle that it has, until recently, eluded the search of the most careful observers. In the case of relapsing fever, or recurring typhus, a minute animal organism has been found in the blood, and constantly associated with its invasion and recurrence, the parasite rapidly disappearing on convalescence. The development and spread of the disease is believed to depend upon these minute disease germs, and to be communicated by contact, or through the medium of an atmosphere more or less impregnated with them. Typhus and typho-bilious fevers are accepted by recent authorities to depend for their origin upon a living disease germ, but the actual demonstration is not yet accomplished; yet in the prevention of infection its presence is assumed, and those means which are found most effectual in causing the destruction of the known minute living disease germs are used to destroy the contagium of typhus and other pernicious fevers.

A few general rules may be laid down, which will be applicable in all cases of infectious fever. Contagious disease germs, it will be remembered, are minute living organisms, and so light that they may be supported by the air, and even carried long distances in a living state. "The breath of the sick person, there is reason to think, in many cases is loaded with contagious germs. There is little doubt that the cutaneous exhalation contains them. It is, therefore, of the utmost importance that means should be taken to destroy these particles before they can leave the neighborhood of the sick person or the sick-room. At the same time it is certain that of healthy persons exposed to the influence of these germs, by far the greater majority will escape infection; and observation and experience justify the conclusion that nurses and attendants really run little risk of contracting contagious fevers from the patient, unless they are themselves out of health. A healthy nurse, who takes the ordinary precautions for keeping herself in good health, may be continually exposed to contagion, and devote her life to the service of the sick without being once attacked. But this is no reason for relaxing, in the slightest degree, our efforts to extinguish contagious or infectious poisons, and the greatest precaution should, in all cases, be taken to destroy all contagious disease germs as soon as possible after they come into existence." *

One of the most important measures for this purpose is to secure free and complete ventilation, and a frequent entire change of air in the apartments used by the sick. Contact with the oxygen of the air produces the combustion of the organism to a very great extent, and if sufficient oxygen could be supplied, and brought in contact with the disease germ, it is probable that no other means would be necessary, but the air alone will rarely afford sufficient for this purpose, and from the fact that the germs are often hidden in the folds and texture of garments, and bed furniture. When free access of air is impossible, it becomes necessary to use additional measures.

First, to dispense as far as possible with all hiding places, such as carpets, curtains, and woolens of every description. Second, to secure the most scrupulous cleanliness of the persons of the patient and attendants, and of apartments, and of all clothing and utensils. Permitting access of none but the necessary attendants, who should be as few as possible, and should communicate as little as possible with other persons.

All the food and drink which has been brought into the sick-room should be consumed by none but the sick, or the attendants, and no clothes should be carried out of the sick-room until they have undergone a thorough disinfection. This may be most readily accomplished by first soaking them in a solution of carbolic acid, ½ ounce to the gallon of water.

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* Beale, Disease Germs, The Nature and Origin. Second Edition. London, 1872. Page 262.

The *excreta* of the patient should also be at once disinfected, by throwing into the vessel a handful of finely powdered charcoal and bruised sulphate of iron. Where the discharge from the bowels are passed unconsciously, or without control of the patient, a cushion of powdered charcoal may be placed underneath; this will absorb and disinfect at once, freeing from all disagreeable odor. The vapor of tar has a decided power in destroying disease germs A vessel of water with a little tar poured on it, and set on the grate or over a spirit-lamp, will prove a valuable adjunct in disinfecting persons and apartments. After the occupation of rooms by persons sick with contagious or infectious diseases, a thorough and efficient washing of the floors and ceilings should be insisted on, and the fumes of sulphuric acid gas be set free in them, by burning a few lumps of roll sulphur in an iron vessel, the doors and windows having been previously sealed by pasting paper over the crevices, and letting it remain for twenty-four hours. A more troublesome, but still more efficient mode, is that lately adopted by Professor Doremus, in disinfecting the infected wards of Bellevue Hospital, viz., that of setting free large volumes of chlorine gas. The black oxide of manganese and common salt were mixed to a consistence of thick mud, and placed on vessels made of sheet-lead; the vessels were then filled with the strong sulphuric acid of commerce; and the fumes of the chlorine were then rapidly evolved. The effect of this proceeding was to eradicate thoroughly all the germs of disease with which the wards had become saturated, as shown by the fact that, in their subsequent occupation, no contagious element was found to remain. In the above proceeding, it is necessary to leave the room promptly, in order to avoid the inhalation of the acid fumes of the chlorine, and also for the same reason to prevent access to the rooms for at least twenty-four hours. Free inhalation of the concentrated fumes of chlorine gas would prove promptly poisonous. With reasonable care, however, this process may be effected without danger, but should only be attempted by those familiar with all the responsibilities of this mode of procedure.

A word now in regard to the *personnel* of nurses entrusted with the care of persons suffering from communicable diseases. All garments worn should, as far as possible, be of *washable* material, and the dress should be made "*gored*," and otherwise as free as possible from tucks and folds. Every pucker is a possible hiding place for disease germs, which thus kept from contact with the air may retain life and be carried until (if not destroyed by baking, or other efficient means) it finds a favorable soil for its development, in persons perhaps miles away. All unnecessary articles of dress should be avoided, remembering that each may become the focus of infection, and no nurse should visit, outside the sick-room, without changing her entire dress, for that which has been in no way exposed to the influence of the infection. The hair in an especial manner should receive the most careful attention, for by itself it is a rare hiding place, and when supplemented, as is a fashion, by *switches*, *rolls*, *mice*, and *chignons*, it is simply a garden spot for the development of diseased organisms. The *finger nails* should also be carefully cleansed.

All adventitious ornamentation should be eschewed, and the natural hair should be thoroughly washed, and, for perfect security, be bathed in a solution of salicilic acid, after an attendance upon any of the infectious fevers, before mingling with the outside world. Do these conditions seem unnecessarily onerous? You have but to bear in mind the possible results of their neglect. The possible transferrence of the *puerperal fever* poison to a healthy woman is nearly sure to result in death to that woman. The careless carrying of a scarlet fever disease germ may spread this terrible disease throughout a neighborhood. Never forget that your mission is to succor and save; that human life is entrusted to your care; nor fail to remember that your responsibilities are great, in proportion as the need of your best services is great; and moreover, that these responsibilities do not end with the care of your patient, but are often greatest in relation to the community in which you work and live. Nothing, then, which shall give promise of an added security against becoming the medium of transferring disease from those who have been in your care to others with whom you may come in contact will seem too troublesome or too onerous for you promptly, systematically, and cheerfully to adopt. So will your mission prove one of pure mercy, and your conscience be and remain void of offense towards God and towards man.

ART. VII.—*Lecture delivered in the Preliminary Course of* 1876 *at Starling Medical College, Columbus, Ohio.* By P. J. KLINE, M.D., of Portsmouth, Ohio.

GENTLEMEN: By request of the Faculty of your College I am delegated to the office of offering you a few lectures on "Physical Diagnosis." While our course must necessarily be short, and the lectures not by any means all that we would desire to present to you, either as to matter or manner, gathered as they have been amidst the cares of hurried and pressing professional duties, still, at the risk of being tiresome and leaving some important subjects unnoticed, we must here take time to bring before us some general considerations before entering into the details of so important a subject.

In this particular branch of your science you will find wide scope for the use of all your reasoning faculties and a well-disciplined mind, enlightened by sound and accurate pathological information, and guided by the unerring hand of anatomy and physiology.

The dissecting-room, the post-mortem examination, the laboratory, close observations of symptoms before death, and careful inspection of signs after death must be your instructors. Without these aids *no one* can become a skillful diagnostician.

To us at the present day the path over which we must travel in search of knowledge from this branch of medical science is not necessarily a rough one, smoothed down as it has been by the many feet that have gone over it, enlightened as we are now both by the errors and discoveries of those who have gone before. The fathers in medicine were our pioneers, and we, their justly proud offspring, follow in the beaten track of progress and discovery that their tireless hands and indomitable wills have thrown up for us.

Still, gentlemen, I would not by any means wish to impress upon you that we have nothing to do but loiter in idleness and cull at our ease rare fruits by the way-side, or waste our time dreamily waiting in an atmosphere perfumed with grateful memories.

There remains much to do and that which is hard to accomplish. You have entered upon a profession that will *never* be completed; an art as varied as the human family is numerous, and as intricate as the human system is wonderful.

Do not be satisfied with what your lectures or your textbooks may tell you. Read and think and examine for yourselves. While you are careful, do not be timid. The man who never made any mistakes never made any discoveries.

Carry the torch in your own hand and explore every dark and hidden recess in your profession. The knowledge which you thus acquire will make you skilled diognosticians, respected by your confreres, revered and honored by the suffering, and be the means of removing many apparently incurable maladies, and the power of prolonging human life. It will give you assurance in your calling, the confidence of your patients, and enable you to apply your therapeutics intelligently and boldly, and save you many weary hours of anxiety, simply because you know what is the matter, therefore what to do.

The discussions in consultation are not so often as to what should be done, but as to what is really the matter. The disease once made out, the line of treatment is generally very easily arrived at.

Physical Diagnosis is that branch of our profession which relates to the detection of anatomical changes caused by morbid process. These signs are ascertained by the sense of touch, sight, and hearing. The nature and extent of such changes can be recognized and appreciated by the deviations which they cause in the affected organs from the known physical condition of these organs when in health. The significance of physical signs in disease can be determined, not by theory, but only through clinical observation, confirmed by examinations after death. Therefore we conclude that "physical diagnosis" is partly a science and partly an art—a science because it comprehensively takes account of general facts, and an art because it demands a cognizance of the means and their application to arrive at the desired result.

Do not imagine that some become skillful in this branch by some intuitive knowledge of which they are the fortunate possessors. Men may arrive at different degrees of perfection in the art of diagnosis, possibly owing to some particular mental qualifications; but all who may reach a point of excellence do so by hard study, careful observation, and sound clinical instruction. For it is by the bed-side where diagnosis is best taught, assisted and enlightened by a thorough knowledge of anatomy, physiology, pathology, and chemistry.

Do not falter because it looks like a long and tedious route along which you must travel. "The longest journey is but a succession of steps, and the swiftest traveler can take but one step at a time."

The appliances and improvements in the methods of diagnosis have greatly lightened our burdens, and have made many forms of disease in our practice as plain and easy of detection as they were formerly obscure and intricate.

Avenbrugen, about the middle of the last century, introduced the art of percussion, so ably presented by his learned and brilliant contemporary. Corvisart, and by Lanæ, whose name is immortalized by his introduction of auscultation and the stethoscope. These have enabled us to detect the condition and workings of organs hidden both from view and touch, and put it within the ability of the merest tyro to detect thoracic diseases that would have set at defiance the skill and accumulated knowledge of a Cullen or a Sydenham.

The microscope has done for us as much as the telescope has accomplished for the astronomer and his science. It has led us into many of the secrets of nature the unaided eye never would have been able to penetrate. It points out to us pathological changes wholly unappreciable to the ordinary sense of sight. Its penetrating eye searches out the hidden parts, tells us of molecular changes going on in organs entirely hidden from the sense of touch or sight. It is often the crucial test of pulmonary tuberculosis, and its unerring light has pierced the cloud of ignorance which for years over-hung the idea of spontaneous generation.

The thermometer comes in for its share of practical utility, in that it detects fluctuations in temperature wholly unappreciable to the ordinary sense of touch. Its sensitive column points out an internal inflammation, foretells an impending dissolution with wonderful certainty; it is the mile-board that marks the steady march of idiopathic fevers, and is often the means of setting at rest a diagnosis as to whether an elevation of temperature is dependent upon an organic change or a mere functional derangement.

The sphygmograph of Marvy also comes in for its share of work and aid in diagnosis. Chemistry, too, with its accurate tests, its re-agents, its wonderful revelations, robbed of the superstition and mystery that enveloped it during mediæval alchemy, has become one of our most valuable, and, in urinary disorders, our best aid in diagnosis. But time forbids me speaking further of these outside helpers.

We must be well acquainted with the natural history of disease to be able and ready to draw a line of distinction between various morbid manifestations that affect one individual at the same time—know what diseases are peculiar to childhood and those which are rare in old age. We may not be able, at first examination, to detect whether a lesion is functional or organic. Had we more signs that were pathognomonic we might do so, but unfortunately they, like our curative drugs, are few and far between. Often the symptoms at the beginning of various maladies are so near alike that it is impossible to decide what we shall have to deal with. This more especially happens in fevers, with which medical has more to do than physical diagnosis, but a few days at most will clear up the trouble.

During the past winter, while the small-pox was among our citizens, it occurred to us frequently to be called upon to decide as to whether a patient was taken with variola or not. While it was epidemic among us, and we found individuals, unprotected by vaccination, suffering with severe pain in the lumbar region, occipital headache, vomiting, and with a fever that markedly exacerbated toward evening, we could say, in all probability that patient was seized with small-pox. But when the peculiar papular eruption made its appearance on the third, or, at furthest, the fourth day, accompanied with a marked abatement of all the violent symptoms, then we felt safe in saying we now knew, beyond a doubt, that we had to deal with a case of small-pox. We can not bring our science down to a mere mechanical management. Idiosyncrasies must be respected. We must be careful not to lose sight of our patient and his surroundings while we are aiming at the disease.

Were the manifestations of the same class of diseases just exactly alike in every individual, and the remedies for such diseases, under all circumstances, the same, then our art would be reduced to the working of a piece of machinery. Printed forms and rules could be given as inflexible as the laws of the Medes and Persians. Quacks and charlatans would become as skilled as our best educated physicians, and plodding mediocrity would outstrip genius and learning.

Frequently it is impossible to make an accurate diagnosis, owing to several morbid lesions obtaining in one patient at the same time. Disease is a very complex state, and when one portion of the economy gets out of order another is very apt to follow. In these cases the evidence from the sufferer must be very carefully taken, the lesion in the physical system closely and accurately scrutinized, then all this must be carefully weighed, no undue preponderance given to particular symptoms or signs, and an opinion given in accordance.

Sometimes the treatment becomes the touchstone to the diagnosis. Now, you will very naturally ask, Is it necessary that a case be properly diagnosed to the end that it be rightly treated? Not at all; it simply proves that we sometimes must aim at removing symptoms without understanding their source. How many of you can tell me in what manner or by what process does quinia interrupt the return of a chill? And yet we have seen it do so hundreds of times. There are facts in diagnosis as well as in therapeutics that we can not explain satisfactorily. All this does not prove that if we understood their source we would not be better able to remove symptoms. The practitioner that undertakes to remove simply symptoms of a disease without understanding the source, is like one groping in the dark—like the nervous soldier with his indiscriminate firing, as apt to wound friend as foe. His treatment is as undecided and vacillating as his ideas of the malady are obscure and uncertain. Drug re-places drug, palliation takes the place of cure, and the experience obtained is entirely untrustworthy.

Now comes the proof of what I have already stated, that a correct and careful diagnosis, instead of being a mere waste of time, or simply a gratification of the curious, enables us to use our remedies knowingly and with decision, to appreciate what is being done, to abstain from such as must necessarily be injurious. There is less meddling and fretting, more calmness in the practitioner, and greater confidence on the part of the patient. The treatment rises above the consideration of the present moment, and takes into account what is for the patient's ultimate good.

Some will argue that great skill in diagnosis will beget a timid practitioner and weaken his confidence in medicine. Better would it be to say it shows how wide is the chasm between our knowledge of morbid conditions and their remedies. It only shows our art to diagnose far outruns our power to heal. And yet, gentlemen, this very knowledge will often prevent us from making rash promises when ignorance would prompt us to it, bringing naught but chagrin to ourselves and sorrow to the friends. It will often enable us to tell the course and probable issue of a malady, and so direct our course of treatment, if we are not able to cure, so that we may be at least the means of smoothing the pathway to the grave for the poor sufferer and prepare sorrowing friends for an event that must be inevitable.

You will now very likely ask what are the mental qualifications requisite to become proficient in diagnosis? Nothing more than that required in any other than medical investigations, viz., sound judgment, clearness of perception, accuracy of observation, a willingness to work, and good common sense. Now, in order to expedite this art of diagnosis, and to put our work into shape, so that it will be a benefit not only to ourselves but to others also, we must have certain plans by which we shall be guided in our investigations—

some definite method, and especially when we wish to keep a written record of our interesting cases.

To conduct a clinical inquiry with facility requires constant practice, and is rendered easier by following some well-digested plan. The advantages derived from adopting such a plan is easily seen by watching a beginner in his examination of a patient. His questions are scattering; no particular organ or symptom is fixed upon as a basis of investigation; he moves aimless from one part of the body to the other; does not weigh the testimony as it is elicited from each organ or symptom; and finally arrives at an erroneous conclusion, or gives up in despair.

In our examination of patients, our troubles are legion. In one we are obliged to draw out the information a good deal as a cork-screw extracts a refractory cork from the neck of a bottle. In another we are stunned and overwhelmed with their volubility; all the aches and ills possible to be borne by one poor human have taken up their abode with this individual. In another case we dare not ask a leading question, for their vivid imagination will locate a pain just where our question puts it, but of its existence they may have been in blissful ignorance up to the time of the examination. Then there are those who feign diseases for various purposes, but, not being good pathologists, they overdo the symptoms, and, according to logic, that which proves too much, proves nothing at all, so their attacks of epilepsy, paralysis, tuberculosis, aphonia, amaurosis, and insanity are not rare, but overdone.

Last, but not least in number and interest, are the children. Here, gentlemen, you will have an opportunity of exercising all the tact and ingenuity you can bring to bear upon these cases. The symptoms then must be the objective, and an intelligent, truthful nurse or mother will be to you a God-send. Your powers of observation will be taxed to the utmost, and you will often leave the bed-side of the little sufferer annoyed with the conflicting symptoms, and vexed at your inability to decide certainly what the trouble really is. But do not be discouraged at these things. Watch its mode of lying; its attitude when standing. Its cries will finally become an intelligent language to your educated ear; and when you have once overcome their fright and gained their confidence, they will be ranked among your treasures.

In all these cases you will arrive at the point of excellence by continued practice, and often you will be obliged to exercise the same tact and acumen to elicit facts that a lawyer is obliged to use to glean his evidence from a witness. One of the principal plans used to arrive at a diagnosis consists in first questioning a patient in regard to his history, his age, occupation; the diseases he has been subject to during childhood; habits of life; what affections, if any, are hereditary in his family. Then, after this, investigate his present condition, the origin, progress, and duration of his present malady; what remedies (if he has been under treatment) have been used. Interrogate each organ suspected or unsuspected. Now the investigation is complete, the diagnosis is settled upon, and the prognosis and treatment laid down.

This manner of examining is called the historical or synthetical method. There is another, in which the order is reversed, called the analytical method. In this the patient's present condition is first made out, and subsequently his history. Both of these plans have much in them to be recommended, and not a little that is objectionable. The former is more purely scientific, but it is too full of details, and requires too much time and labor for the hurry of ordinary professional life. It is better adapted for recording cases when we are in the pursuit of pathology, and decidedly the best when the symptoms are obscure, and the history of the case badly defined.

A very good and practical plan is to take a general history and survey of the most prominent symptoms of the patient;

and in this manner having obtained a clue to the part most likely to be affected, explore that with great care. It is also well to interrogate organs closely connected with this part, either organically or functionally. Say, for example, you are called to the bed-side. Inquire of the patient how long he has been sick; in what manner that sickness began; in what way he is chiefly troubled now; if suffering pain, and where; how long feeling ill before taking his bed; in short, what is it, according to his own sensations, that is giving him the greatest trouble. Meantime, we are watching his countenance, the position of his body, his movements, and manner of breathing; the hand is applied to the skin, and the pulse is felt. Partly from the examination, and partly from the history, some organ is fixed upon for examination. While this is going on, the mind intuitively sifts the evidence obtained; the history is reviewed; the balance between symptoms struck; the diagnosis cast, modified, or extended; and, finally, the treatment decided upon.

Now, gentlemen, you may say this all seems very plain and easy, and so it is when, all the symptoms are clearly marked, when we fully detect and understand their meaning, and when the case is a simple one. But we shall not be so fortunate as this all the time. Before we separate, we shall find it will not be our fortune to sail at all times on a smooth sea; troubles, mountain high, will break over us; but courage, determination, skill, and knowledge will bring us through at last, and land us in a quiet harbor.

Art. VIII. Placenta Prævia.—*A paper read before the Montgomery County Medical Society.* By E. C. Crum, M.D., of Dayton, Ohio.*

On the morning of June 7, 1872, I was called upon to attend Mrs. S., in confinement. Mrs. S. is a native of Germany, æt. 45, multipara, and had been in labor one hour previous to my arrival. Pains were regular, and each one was attended with a gush of blood. Upon making an examination per vaginam, I found the os uteri well dilated, felt the placenta implanted over the os, and on making firm pressure I could detect the vertex. I immediately made known the results of my examination to the family, and then proposed a consultation. Dr. Geiger was then called, and after making an examination, said that there was but one thing to do, and that was to deliver by bringing down the feet. The patient being placed in position, I now proceeded to accomplish version. On the introduction of the hand the uterus contracted, expelling the placenta, and all hæmorrhage ceased. We then waited some two hours, after which the delivery was accomplished with the forceps. Mrs. S. made as speedy a recovery as if it had been one of natural labor. A little more than three years after, I was again consulted at my office by Mrs. S. in regard to a discharge of blood from the vagina. She stated that she was about three months pregnant, and that she was in great fear, believing that she would have the same trouble as before. After trying to quiet her fears in regard to her case, I advised her to return home, keep as quiet as possible, and if any thing should occur to let me know. I did not hear from her for some time, when, on March 13, 1876, I was called to see her about 8 o'clock A.M. I learned from her that she had been losing small quantities of blood since the third month of her pregnancy. This morning she experienced pain, accompanied with hæmorrhage. Upon making an examination per vaginam, I found the os slightly dilated, but only sufficient to admit the tip of the finger, and could feel the placenta resting partially over the os, and on making firm pressure I could detect the vertex. I then called Dr. T. D. Davis, who, after making an examination, said that he did not think she was more than six months pregnant, and as delivery could not be accomplished, suggested the internal use of fl. ext. of ergot and the application of the tampon. He did not believe it was necessary for him to remain with me, believing that nature would terminate the case favorably. I remained with her nearly all day, and gave her the ergot and applied and reapplied the tampon. The os continued to dilate slowly, and the pains continued weak, without assuming any expulsive character. About 3 o'clock P.M. she began to show signs of exhaustion, syncope supervened, and the strength of my patient seemed to be rapidly fading away. I then called for Dr. Davis a second time, after which it was decided upon to call Dr. J. C. Reeve, who, after examining the case, said that he would proceed to deliver by bringing down the feet. This he speedily accomplished, Mrs. S. being delivered of a six-months fœtus. The hand was re-introduced, and the placenta extracted without any hæmorrhage following. Mrs S., though much exhausted from the loss of blood, improved rapidly under the use of tonics and stimulants, without the appearance of any unfavorable symptoms. One important circumstance to which I wish to draw your attention is the occurrence of this abnormal implantation of the placenta twice in succession in the same patient. After examining the various records and searching the various obstetric works, I must say that I am unable to find any report of cases in which this malposition occurs twice in succession in the same patient. The cause of this occurrence of placenta prævia I believe to be due to a debilitating influence of predisposition. If we examine the reports of various cases, we find that it occurs largely in women who have previously borne large families who breathe an impure air and are imperfectly nourished. Dr. Robert Grieve (Glasgow Med. Journal, April, 1876,) states that of all the cases which came under his observation, not one was a primipara, that the fifth labor was the lowest and the eighth the highest, all were between thirty and forty years, and that all were poor and physically weak. The mode in which the debilitating influence of predisposition causes placenta prævia is by overcoming the tone and elasticity of the organ, thus allowing the ovum, as it emerges from the orifice of the Fallopian tube, to gravitate to the most dependent portion of the uterus, where the placenta becomes developed in consequence of some disease of the chorion, rendering it unfit for placentary development, or some disease of the fœtus. Fortunately placenta prævia is not of frequent occurrence. Dr. Schwarz having examined the official returns made by the Hesse-Cassel pracitioners, states that during a period of twenty years five hundred and nineteen thousand three hundred and twenty-eight births were reported by one hundred and fifty accoucheurs, and among them three hundred and thirty-two cases of placenta prævia, or one in fifteen hundred and sixty-four labors, the numbers varying from eight to twenty-eight per annum. Dr. Thomas (New York Med. Journal, Feb. 1870) states that it occurs once in five hundred cases, but according to the more recent and larger statistics of Depaul, only once in about twelve hundred cases. We usually find the symptoms of placenta prævia described as occurring at two different periods. First, those which occur previous to labor; and secondly, those which occur at the time of labor. When they occur previous to labor the pregnant female will be taken with a sudden flow of blood, gushing out with more or less violence for a moment, and then ceasing for a time, and then returning again, with similar intervals of quietude, exciting in the patient little, if any, apprehension of danger. Second, at the time of labor the flow of blood is attended with pain indicating the commencement of labor. Of this, however, we can only be certain by an examination per vaginam. Should the discharge of blood increase as the pains of labor advance, and there be no reason for a suspicion of accidental bleeding, we have a good degree of evidence that the case is one of placenta prævia.

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* This article was received too late for insertion in its proper place.

Now we see that placenta prævia may exist without any suspicious symptoms, for in the first case of Mrs. S. she, during the entire period of her gestation, had no periodical hæmorrhage, or any other symptoms which would have led one to suspect its existence. During her second pregnancy this symptom (hæmorrhage) appeared as early as the second month, and continued, with more or less violence, until the sixth month, when she aborted. We shall know the placenta by the fleshy fibrous and lobular sensation which it communicates to the finger, and by its being attached to the inner surface of the cervix. There is a probability of our mistaking a coagulum blocking up the os uteri for the placental mass; but the placenta can not easily be perforated or broken down, the tenacity of a coagulum may, without difficulty, be destroyed; the placenta is attached within, a coagulum lies loose; the placenta can not be removed by the finger, but we can bring away a coagulum.

The most important and interesting circumstance connected with placenta prævia is, unquestionably, its management; for, although the fatality of these cases is comparatively great, both to the mother and child, yet, through prompt and judicious management, it may be much diminished. As the hæmorrhage is the peril, it is that to which our attention should be directed. Different treatment has been advocated by different authors. The earlier writers practiced immediate delivery. Smellie, in 1752, dilated the os with the fingers, ruptured the membranes, and also resorted to the forceps, the crotchet, or podalic version if the hæmorrhage persisted or the labor delayed. The tampon was an important advance made in 1776 by Lereax. Ergot has its advocates, and has frequently been used to supplement some of the other modes of treatment. Thirty years ago the name of Sir James Simpson was so identified with its treatment that his method was urged with all the earnestness and ability of its distinguished advocate. Observing that some cases did well where the placenta had become completely detached, and was delivered before the birth of the child, he asserted this rule of practice. In his table of one hundred and forty-one cases, he shows that one child out of every three survived, or thirty-one per cent. of the children were saved, while sixty-nine per cent. of them died—the mortality being one in fourteen. Dr. Barnes advocates partial detachment of the placenta. Premature labor was practiced as late as 1862 by Dr. Greenhalgh. He advances the argument that in any case of hæmorrhage due to placenta prævia, occurring after the seventh and a half month of utero gestation, when the child is viable, it is expedient both for the mother and child to expedite labor, unless the condition of the patient from exhaustion prevents it. Dr. Thomas believes that it should be the recognized practice to resort to premature delivery as a prophylactic measure in cases of placenta prævia. Some of the best obstetricians believe at the present time that it is best to arrest the hæmorrhage, and wait until the completion of the term of gestation; while just as eminent obstetricians are adopting, as affording the best result, premature delivery, for it is generally conceded that by this mode of delivery more mothers and children are saved than by any other. However, time can only draw a conclusion between these modes of delivery. As for myself, I am at present unable to state from which of these modes the best results can be obtained, but I am inclined to favor premature delivery.

Now, as for the best means of accomplishing delivery, there is a great discrepancy, but all are agreed that the imminent danger is from hæmorrhage, and almost all will say that asphyxia is the danger threatening the infant. The various modes for the treatment are ergot, puncturing the membranes, the tampon, podalic version, complete detachment of the placenta, and its partial detachment as urged by Dr. Barnes.

Ergot, the first on the list, has its warm advocates, who claim for it wonderful power in arresting the hæmorrhage.

Admitting all this, we must not lose sight of the infant. Asphyxia is its danger. Ergot produces contraction of the uterus, and lessens the surface for the purification of the blood, and also hinders the influx of maternal blood to the uterus. The conditions in which ergot is admissible for the safety of the child are, when the os is dilated or dilatable, and the labor can be speedily terminated.

Puncturing the membranes is recommended, and has been especially applied to cases in which the presentation of the placenta is only partial, and where, consequently, a portion of the membranes was in reach, and to cases in which the hæmorrhage was only slight in its degree and effects. But this mode of practice is equally objectionable with ergot, so far as the mother and child are concerned, for it may convert an open into a concealed hæmorrhage.

Podalic version is also considered by many both dangerous to the mother and child. However, this is insisted upon by the more recent authorities as *the* treatment in placenta prævia.

The complete detachment of the placenta, as urged by Sir James Simpson, has not received general indorsement. This distinguished author gives a tabular statement of the favorable results of this mode of practice, and from these results argues its propriety. One principal reason for the non-indorsement of this mode of practice is, that it has not been as successful as other modes of treatment.

The partial detachment, as urged by Dr. Barnes, has been shown to rest upon an erroneous theory; hence this mode of practice has not been indorsed.

The tampon is objected to by some, according to the material from which it is made, and admired by others. The principal objection to it is, that it converts an open into a concealed hæmorrhage.

The form recommended by the largest number of the profession is the hydrostatic dilators, which not only act as a dilator, but also as a tampon. By these dilators hæmorrhage can certainly be prevented, and delivery affected within a few hours.

Having considered the treatment of others, a few suggestions of my own may not be amiss. When we are summoned to a case of placenta prævia, our conduct should depend upon the period of pregnancy, upon the state of the os uteri, and upon the amount of hæmorrhage. If upon our arrival we find that she has arrived at her full term, that the os is soft and dilatable, or dilated sufficiently to admit the tips of three fingers, it will be our duty to deliver at once, according to the requirements of each individual case. We may sometimes find the condition of the patient not quite so favorable for delivery; for instance, we may find her faint and gasping and cold; the uterus quite inactive, with its mouth wide open, and possessing a degree of flabbiness which is indicative of the most imminent danger. Under this condition delivery would be easy, but it would be followed by almost certain death; for if we empty the uterus under syncope, it will not take upon itself the active contraction necessary to close its vessels and insure perfect safety. Here we must rouse the patient from this torpid state in which she is lying, and bring the system up to a certain point before we attempt to deliver. Stimulants here are called for. Brandy, ether, and ammonia may be administered until the restoration necessary is procured, and then delivery attempted.

Again, we may learn that, previous to our arrival, there has been considerable hæmorrhage, and upon making an examination per vaginam, we find that the os uteri is not dilated larger than a sixpence, but is soft and distensible. Here we may do one of two things: either use the hydrostatic dilator, or give ergot and apply the tampon. Of the two, I believe the hydrostatic dilator will be attended with the most favorable results; for, as a principle, recourse to delivery had better be had an hour too soon than an hour too late.

TRANSLATIONS.

ART. IX.—*On the Epithelial Changes produced by Sarcomatous Growths.* By Dr. RUDOLPH TAUSZKY, of New York. Translated from the Transactions of the Royal Academy of Science of Vienna, Vol. LXXIII., January, 1876, by OTTO FRANKENBERG, M.D., Prof. of Pathology in Starling Medical College, Columbus, Ohio.

It is a well known fact that sarcoma growths, which have originated either in the cutaneous or subcutaneous tissue, also those which appear in more deeply situated tissues in their progress towards the surface, sometimes bring about ulcerative processes of the integument.

The integument covering the tumor is always attenuated, before the ulcerative process begins, often accompanied with inflammatory symptoms. After a certain time a visible loss of substance is observed at the most prominent point of the tumor, which gradually enlarges, and at the bottom the tumor is seen as a reddish, slightly nodular, or even smooth mass of connective tissue. The ulcerative surface produces, as a rule, a relatively small quantity of pus. Clinically this is a valuable symptom, as diagnostic of a sarcoma tumor. Carcinoma invariably gives rise to ulcerative processes on the skin, and the ulcers thus produced present uneven, nodular, and irregularly granulating surfaces, which produce pus or ichor.

The question now comes up, What histological changes take place during the disappearance of the epidermis? Of course, with the customary expression of "shrinking or dying" of the epithelium a clinical view is only given, the cause must be sought in anatomical changes. At the same time the question may be answered, What changes does the epithelium of glandular organs undergo when sarcoma growths appear in these?

The literature of the growths under consideration has not given me a satisfactory explanation of the question. I therefore examined a number of sarcoma growths of the skin and glandular organs, with special reference to the behavior of the epithelium. My specimens were:

1. A sarcoma growth about the size of a child's fist, which was extirpated from the abdominal wall of a man fifty-five years of age, by Prof. J. H. Pooley, of Starling Medical College, Columbus, Ohio.

2. Sarcoma growths of walnut size, which appeared in the right groin of a man sixty-nine years of age. After repeated extirpations they were followed by numerous secondary sarcoma nodules in the lungs. The post-mortem examination was made by the attending physician, Dr. L. Schöney, of New York.

3. A sarcoma growth of the testicle, very near the size of a child's head.

4. A sarcoma growth of the submaxillary gland as large as a chicken's egg. Both extirpated by Prof. Henry B. Sands, of New York. The sarcoma of the testicle was removed from a man forty-eight years of age, and the submaxillary tumor from a man aged seventy-two years.

5. Sarcoma nodules from the liver of a man aged fifty-nine, which appeared secondarily after a primary extirpation of a tumor of the eye-ball, at the same time nodules made their appearance in the omentum, mesentary, and walls of the small intestines. The post-mortem examination in this case was made by Dr. Rödiger, of New York.

I will say in advance that in these sarcoma growths were represented the so-called round cells (cases 3 and 4), spindle cells combined with round cells (case 3), and alveolar cells (cases 2 and 5).

In case 1 the tumor was composed of an uninterrupted mass of protoplasma, in which appear, at almost regular intervals, oblong, spindle-shaped, or regular, almost homogeneous nuclei. Only in the periphery of the tumor did I find protoplasma corpuscles in cutaneous and subcutaneous connective tissue, such as we also observe in inflammatory processes of the above-named tissues.

I pass by the more detailed description of the tumors, as not belonging to my subject.

I believe that, in order to understand the changes of the epithelium, we must accept Dr. C. Heitzman's theory of the origin of epithelium as correct, which was presented to the Royal Academy of Vienna in 1873, entitled "Researches on Protoplasma."

According to this view the epithelium is built up from elements (cells) which are separated one from the other by a thin layer of basis or cement substance, but are connected among themselves by means of simple spiculæ (Stacheln Max Schultze).

The epithelium is accordingly a continuous layer of protoplasma which is not supplied with blood-vessels. In each individual element the living matter produces the nucleus, the shell of the nucleus, and the nucleolus, and all these formations are in continuous connection among themselves by means of fine threads. The living matter also forms the marginal layer of each epithelial element, and by means of the spiculæ that are visible in the cement substance the connection between the living matter is established. The cement substance which surrounds each element like a cloak is without life, and must be looked upon as being derived from the fluid of the protoplasma. I particularly wish to emphasize that, according to this view, the spiculæ (Stacheln von Max Schultze) which traverse the cement substance are said to have their origin in the living matter, for only in accordance with this supposition are the pathological processes which we so often meet with in the vicinity of the cement substance easily and satisfactorily explained. The lifeless portion, that is, the cement substance itself, is, according to this view, analagous in chemical behavior to the basis substance of the connective tissue. Just as in the earlier stages of an inflammation, a dissolution (melting) of the basis substance takes place which sets free the living matter that had been imbeded in it, and causes the reappearance of protoplasma, we also observe in the epithelium, during the earlier stages of interrupted nutrition, a dissolution of the cement substance, which causes a complete or partial coalescence of several neighboring epithelial elements. First of all protoplasma corpuscles are formed which contain several nuclei, and in these appears new cement substance from which formations may originate that are morphologically different from epithelium.

The newly formed elements have often lost the character peculiar to epithelium; the elements formed are smaller, but may closely resemble those that originate in connective tissue. I must emphasize the fact that the transformation of epithelium into formations of different shapes and sizes is possible only after the cement substance has been melted (eingeschmolzen) and again newly formed later on. It is very improbable that while the cement substance remains intact, a physiological or pathological enlargement of the epithelium can take place, because the cement substance is a pretty strong shell, which surrounds the protoplasma of the epithelium, and, as is well known, makes the locomotion of a free epithelial scale impossible even upon a heated slide. We can not conceive how it would be possible that a perceptible growth of the living matter within the protoplasma could take place unless a previous softening had gone before.

Every particle of living matter is endowed with productive powers, that is, is capable of growth and of reproducing its like. Not only the nucleus, but every granule within the protoplasma possesses the power of growth, of dividing itself and forming new elements.

This fact holds good alike for the living connective tissue as well as for the epithelium that is still living. The superficial layers of the epidermis are to be considered as epithelial formations which have become dry, are devoid of life, have lost the productive power, and are simply cast off. The line which divides the living from the dead epithelium is often a sharply defined one.

If we see, therefore, a number of coarse, glistening, yellowish granules in the epithelium, the explanation is found in the fact that the living matter contained in the protoplasm of the epithelium has increased by growth. The peculiar lustre of these granules (Klümpchen), the power of carmine to color them red, the chloride of silver to color them violet, differentiates them sufficiently from fat. Such homogeneous globules sometimes appear in limited numbers only in the protoplasma; at other times, however, they are so numerous as to make it impossible to see the nucleoli at all. These granules remain connected with one another, at first by means of fine threads, and form the basis for the so-called endogenous, new formation of elements which we often meet with in inflammatory processes of the epithelium.

But the living matter in the spiculæ (Stacheln) is also capable of growth if supplied with a sufficient amount of nutritive material. The thread is changed into a molecule, then into a granule, and when a number of these elements unite may give origin to red or spindle-shaped elements, which still remain connected with neighboring bodies by means of fine threads. And here, also, is another source from which a new formation of elements takes place. The union of the new elements with neighboring bodies permits of precluding the idea of an immigration, at least in many places, as it was supposed by A. Biesiadecki.

I now turn to the description of those changes of the epithelium that are conditioned by the growth of sarcomatous tumors.

These changes may be divided into two groups. The first group embraces the purely inflammatory processes; the second group, on the contrary, touches upon changes that lead to the production of sarcoma elements out of epithelium. No distinct division can be drawn between these two groups, because the changes observed in inflammation are like those that accompany the growth of tumors, inasmuch as the question in both cases is with regard to the new formation of living matter and formation of new elements.

Inflammatory Changes.—Preparations of the tumor, mentioned in section 1, taken from the integument near the ulceration, show with low power that the layer of epidermis was thinned in several places. We see that at first the pigmented layer which constitutes the immediate border next the connective tissues is in a condition of moderate "*cell infiltration*," that is, inflammation. The pigmented epithelium lying next to the connective tissue, in the majority of instances is arranged irregularly, and is deficient in many places. A higher amplification shows that the epithelium along the confines is broken up into elements which are not morphologically distinct from those that originate in connective tissue. Only the pigment in the nuclei is a reminder of the origin of these elements, but the pigment here also grows gradually less, as the inflammatory changes make their way toward the epithelium. We next meet with groups, or dispersed pigment granules, lying in the region where the changes take place, apparently remains of the former epithelium, but the larger mass of pigment disappears, probably by interference with the nutrition of the pigment granules themselves, that have not yet been entirely deprived of viability. In this case, with moderate inflammatory appearances, the epithelium containing pigment is changed directly into indifferent protoplasma corpuscles, which serve as a basis for the formation of new elements. A really new formation has as yet not taken place, but out of specific elements indifferent elements have been produced by the formation of new border lines. (Kittsubstanz.)

Of particular interest is the behavior of the hair-follicles and sweat-glands which are imbeded in the tumor. Many hair-follicles that still contained hair presented no essential change in the substance of the hair-follicle or in the root-sheath.

On the contrary, I have met with hair-follicles in which the hair was missing. Here the connective tissue of the hair-follicle was transformed, in patches at least, almost completely into tumor tissue. The elements of the outer root-sheath had divided into numerous glistening, brownish-yellow bodies, so that the original form of the epithelium could only be recognized by the grouping of these bodies. (Klümpchen.) These bodies were all connected one with the other by fine threads.

The ducts of the sweat-glands remained unaffected in most instances, but, on the other hand, the glands presented a conglomeration of glistening, yellowish bodies, which by their grouping indicated that their origin was from the gland epithelium. The central lumen was absent in many transverse sections of the ducts. The connective tissue bordering on the epithelium was absent in patches, in such a manner, moreover, that the tumor tissue came in direct contact with the changed epithelium. As to the further changes of the gland epithelium I can say nothing.

The skin which covered the tumors, mentioned in division 2, was not ulcerated in any place, but was only stretched and redened. Perpendicular sections through the outermost portions of the tumor instructed me as to the singular changes in the epidermis. It was reduced to but a few layers of epithelium, the mucous strata being thinly covered. Near the surface several epithelial scales had coalesced, which was made apparent by the fact that the bands of cement substance had disappeared (in the optical diameter). The spiculæ (Stacheln) which traversed the bands of cement substance were well marked in all instances, even swollen to square or somewhat round granules. At many points the granules were not visible at all, and their place had been taken by peculiar, glistening bodies, spindle or oblong in shape, which correspond exactly with the "*migration cell*" described by Biesiadecki. By careful observation, however, one soon becomes satisfied that they were connected with the neighboring elements by fine threads. Particularly numerous were these formations along the border that separated the epithelium from the sarcoma tissue, where, indeed, the spindles themselves underwent the transition directly into those bands which separated the several sarcomatous elements one from another. Here, then, we have to do with a new formation, principally derived from the spiculæ, whereas it is not possible to demonstrate the transformation of epithelium into sarcomatous elements. The perceptible thinning of the *rete mucosum* can probably only be explained by those changes.

Transformation of Epithelium into Sarcomatous Elements.—The tumor of the scrotum mentioned in division 3, offered splendid opportunities for the study of changes in the epithelium of the scrotum caused by sarcoma growth. Even with low powers, the conviction was soon gained that the sarcomatous tissue had in several places separated the walls of the seminal ducts considerably, and in many situations the gland tissue could not be discovered. Several transverse sections of the canals showed that not only was the line of demarcation between the sarcoma and epithelium absent, but that the epithelium represented, in part at least, the same tissue as did the tumor. Higher amplification satisfactorily explained this peculiar condition.

The epithelium in a transverse section of a gland duct appeared to be well preserved in one place. Near by, several epithelial scales showed a number of coarse nuclei and granules that represented nuclear-like formations.

It was surprising that only in patches the above-described changes of the epithelial scales had taken place; whereas in other parts no considerable changes were present except that the nuclei appeared larger.

Lastly, there were places in which it seemed that the epithelium had been replaced by sarcoma tissue. Here all the transformations of the normal epithelium, which was converted into sarcoma tissue, could be followed step by step. The growth of living matter had given rise to the formation of new granules and nuclei. New cement substance conditioned a division into elements, which possess no further similarity to epithelium. Finally, a partial transformation of the protoplasma, in the newly-formed elements, into the basis substance in its perinuclear form resulted, which is characteristic of fœtal marrow as well as of many sarcoma tumors.

The result of these changes was the immediate and complete transformation of epithelium into sarcomatous tissue. In the last case isolated groups of epithelial scales, from six to twelve in number, were observed; but these were, in my opinion, remains of the gland epithelium, and not new formations of the gland.

I will only remak that in these, also, a direct connection was observed to exist between the glistening, spindle-shaped bodies that had formed in the cement substance and the coarse mesh-work of the sarcoma tissue. Further, that here, also, all the new formations of living matter (nucleoli, nuclei, granules, spindle cells, bands) were connected among themselves by means of fine threads. Even in the perinuclear, apparently, hyaline basis-substance, the presence of living matter could be demonstrated in spots, even without the aid of chloride of gold-staining.

Explanation of the changes produced in the epithelium of the liver by sarcoma formation I obtained from the case mentioned in division five. Low amplification shows that the newly-formed sarcoma nodules were separated by a tolerably thick capsule of connective tissue from the surrounding tissue of the liver. That which was within the capsule was alveolar sarcoma tissue; outside the capsule the epithelium bands of the liver were compressed into narrow spindles, which ran along the surface in a parallel direction. But in places the division line between sarcoma and the tissue of the liver was not sharply defined, indicated only by remaining bands of connective tissue. Probably these spots corresponded with the sarcomatous nodules of later and latest date. It is apparent that, partly at least, the liver epithelium bands have been well preserved, whilst in other parts the epithelium has undergone a disintegration and breaking up into round or irregular-formed bodies, which could only have originated from the living matter in the epithelium. These bodies present all the changes of their transformation into sarcoma elements, as they appear in groups, as they approach the sarcoma nodules, which, by virtue of their shape, must be pronounced sarcomatous alveolar formation, separated one from the other by sparse bands of connective tissue.

Here, also, by the endogenous process of formation of living matter out of the liver epithelium has led to the formation of sarcoma tissue. The brownish color of the liver epithelium gradually fades away until it attains the grayish yellow of the sarcoma nodules. In like manner the gradual transformation is indicated by the degree of carmine-staining, which was absent in well-preserved liver epithelium, but, on the contrary, became more distinct as the newly-formed tissue became removed from the normal type of epithelial growth.

I can add that the sarcomatous growth in the submaxillary gland, mentioned in case four, presented in places analagous appearances. Here, again, the transformation of the epithelium of the salivary gland acini could be followed step by step.

My examinations gave in short the following result: The sarcoma growth, progressing toward the epidermis, necessitates a change in the living portion of the epithelium similar to that which we have observed in the superficial inflammatory processes of the skin. The cement substance becomes loosened; multinuclear protoplasma, originating in these new division lines, are marked out, which leads to the formation of indifferent elements analogous to those of connective tissue; or, by the new formation of living matter within the epithelium, as well as in the cement substance, situated between these in the last case, new elements are formed from the living matter contained in the spiculæ. A similar new formation takes place in the outer layer of epithelium of the root-sheath of the hair-follicles and of the sweat.glands. The thinning of the epidermis is probably conditioned by the transformation of the epithelium of the mucous layer into sarcoma tissue.

Sarcoma, which appears in glandular organs (testicles, liver, salivary gland), leads to the new formation of living matter within the protoplasma of the epithelial scales, and to the formation of new division lines and new sarcoma elements. The living matter of the epithelium is directly converted into sarcoma formations, in consequence of which follows a partial or complete destruction of the epithelium.

APPENDIX.

As it may add to the interest of Dr. Tauszky's paper, and will not occupy much space, I will give the clinical history of the first case to which he alludes.

Mr. R., German, aged fifty-five years, consulted me in November, 1874, on account of two growths or tumors situated upon his abdomen. There were two tumors, one about the size of a hen's egg, the other somewhat smaller, close together, but separate, and making up a mass about the size of a child's fist, situated about the middle of the right lateral half of the abdominal surface, a little below the umbilicus.

They projected in an obtusely conical form from the surface, were covered by a very thin but apparently unbroken integument, which was immovably attached to them, but they had no deep attachment, and seemed to have a perfectly flat base, appearing like growths developed entirely in the skin itself.

They had grown so slowly and gave him so slight an amount of inconvenience that he could not tell exactly when they made their appearance.

They gave him no pain except when pressed upon, and as they thus interfered with his occupation, that of a bootmaker, he desired their removal.

They were removed by cutting out an ellipse of integument in which they were included, and were found not to extend deeper than the skin, to have a flat base, and on section presented the naked-eye appearance of firm sarcomatous growths.

The wound healed favorably, and up to this time there has been no return of the disease.

The tumors were sent to Dr. C. Heitzman, of New York, for microscopic examination, from whom I received the following report:

"The two tumors, located close to each other in the wall of the abdomen, presented to me by Dr. Pooley, consist principally of minutely granulated protoplasma, with numerous round and oblong yellowish and shining elements. The latter stand in size and structure in the same relation to the protoplasma as nuclei to cells. The oblong elements are arranged in many places of the mass in bundles.

"The smallest elements (0.012 m. m. in size) are compact, without visible structure; the larger ones show some vacuoles, and the largest (0.06 m. m. in size) are densely granulated. The tumors contain a few large capillary blood-vessels, with large endothelial elements. In the center of the tumors there is no connective tissue to be found. One of the tumors is denuded of the covering skin, and lies bare, showing a smooth surface." [This fact escaped the superficial examination of the tumors made before they were sent to Dr. Heitzman.—J. H. P.] "Those parts of the skin adjacent to the normal skin are very much thinned. Sections in the neighborhood of the borders of the skin prove that the skin is infiltrated with the small elements above mentioned, extending nearly to the section made by the surgeon; in some regions the elastic fibres only are preserved.

"It is easy to observe the appearance of the protoplasma in place of the connective tissue of the skin, then the new formation of compact layers, in certain centers representing the elements of the tumor. The epithelial corpuscles of the rete malpighii are not changed, but without distinct boundaries toward the tissue of the corium, those of the sweat-glands are transformed into shining particles, the epithelium of the ducts of the same being normal. The sebaceous glands in the surrounding skin are moderately enlarged.

"The investigation shows that the tumors are developed in the subcutaneous tissue, and concerning their structure are to be ranked in the class of tumors called round-celled and spindle-celled sarcoma.

"These tumors are known to return easily after extirpation, and in the same locality, being of a malignant character."

As already noted, there has as yet been no return in this case.

J. H. POOLEY.

* * *

DIED, at his home in Portsmouth, Ohio, October 15, 1876, of paralysis of the heart, Dr. A. B. Jones, æt. 47 years, 5 months, and 15 days.

Dr. Jones was well known to the profession of the State, having once been President of the State Medical Society, and possessing many of those qualities, both personal and professional, that made him a man of mark among his brethren.

CORRESPONDENCE.

LETTER FROM NEW YORK.

162 W. Thirty-Fourth St., New York, Nov. 20, 1876.

Dear Doctor: As you well know, it is not many years since physicians as well as students of medicine who desired to familiarize themselves with the science of dermatology had to rely principally on English, French, and German text-books, and had to cross the Atlantic ocean if they desired to acquire a thorough knowledge of the diseases affecting the human skin, and the best methods of treatment applied for their cure. Thanks to American energy, enterprise, perseverance, honest labor, quick perception and appreciation of the works of other nationalities abroad, we do not remain behind in the race for steady progress in any branch of the healing art, and this I wish to record without attempt at self-laudation, that we already have to-day in this country a great number of able, conscientious, and zealous workers in the scientific field herein referred to. We now have not only an American periodical exclusively devoted to dermatology, ably edited by Dr. Lucius Duncan Bulkley, but we have also an American text-book on the diseases of the skin, whose author, Dr. Henry G. Piffard, of this city, deserves the credit of having written, as far as I am aware, the first book ever published in this country on dermatology, I am glad to be able to add my testimony to those of many others, here and abroad, to the effect that the author has most creditably acquitted himself of his difficult task. I can not omit mentioning another beautiful work which emanated from American brains and hands, and this is Dr. Duhring's Atlas of Skin Diseases, recently published in Philadelphia. Among American authors on dermatology might also be mentioned the name of Dr. Bronson, one of the translators of Ziemssen's Encyclopædia of Medicine; furthermore, Dr. W. R. Taylor, of this city, who has enriched the literature of syphilis by his widely recognized researches and observations regarding that formidable affection in children, especially in reference to the osseous tissues. Dr. White, of Boston, who has published two thousand cases of eruptive diseases, may be ranked among one of the best informed dermatologists in this country. Hebra, of Vienna, whose methods of treatment I have published in English in the Cincinnati Clinic, would have to subscribe to every word Dr. White says, as correct, regarding diagnosis, prognosis, and treatment of his cases. Dr. Chs. Heitzmann, although not an American by birth, but proud to be one by adoption, already enjoys the reputation, earned by many years of steady and zealous work, of being an excellent diagnostician in affections of the skin.

But what I desire briefly to bring to the notice of your readers are the titles of the papers which were presented in the section on Dermatology and Syphilography, at the International Medical Congress, held in Philadelphia in September last, in accordance with the promise I made in my letter of the last number of your esteemed journal.

The title of the first paper presented was "Variations in type and prevalence of diseases of the skin in different countries of equal civilization." Reporter, Jas. C. White, M.D., Professor of Dermatology in Harvard University.

Second. "Are eczema and psoriasis local diseases, or are they manifestations of constitutional disorders?" Reporter, Lucius Duncan Bulkley, M.D., New York.

Third. "The virus of venereal sores: its unity or duality." Reporter, Freeman J. Bumstead, M.D., late Professor of Venereal Diseases at College of Physicians and Surgeons, New York.

Fourth. "The virus of venereal sores: its unity or duality." By Chas. R. Drysdale, M.D., Senior Physician to the Metropolitan Free Hospital, London.

Fifth. "A new method of treating seborrhœa." By Chs. Heitzmann, M.D., New York.

Sixth. "The treatment of syphilis with special reference to the constitutional remedies appropriate to its various stages, the duration of their use, and the question of their continuous or intermittent employment." Reporter, E. L. Keyes, M.D., Adjunct Professor of Surgery, and Professor of Dermatology in Bellevue Hospital Medical College, New York.

Seventh. "The treatment of syphilis, with special reference to the constitutional remedies appropriate to its various stages." By Chas. R. Drysdale, M.D., Senior Physician to the Metropolitan Free Hospital, London, England.

All these papers, with the remarks elicited during their discussion, will appear in extenso in the transactions of the International Congress. All those interested in dermatology and syphilography will find in them the views held by the most prominent men in the profession, both here and abroad, regarding the status of the momentous questions that were presented and discussed. Even a brief epitome of the most important points brought out would at this time require more space than you could assign to it, and it is therefore omitted for the present; the more so, since, in conclusion, I desire to communicate to your readers, as I have done in former numbers, some notes on the papers which were read before our medical societies in this city since the publication of my last letter. Before the New York Journal Association (formerly called New York Journal and Library Association, but since the library has been sold it is known as the Journal Association), October 6, 1876, Dr. P. B. Porter read a paper entitled "A Comparison of the Various Methods of Treatment in Pertusis." The Doctor claimed to have drawn the attention of the profession in a publication on the treatment of whooping-cough by hydrate of chloral, in 1872 and 1873, which he was convinced by careful clinical observation was the best remedy to be used for the cure of that distressing affection. Each attack was greatly modified by the administration of chloral, and in from five to six weeks the patients under his care fully recovered. That, however, chloral was not the remedy *sine qua non*, the Doctor proved by his statement that lately he experimented with quinine and the fluid extract of castanea vesca. To which of these remedies preference should be given, he was not prepared to say. Some cases do well if chloral is administered; others are benefited by the use of quinine; still others by the inhalation of sulphuric ether, bringing the patient entirely under under its influence. Of all the methods employed, quinine and chloral, one or both, seemed to him the most useful remedies employed in whooping-cough.

Dr. E. Frankel spoke on "Pulmonary Affections," October 13, before the same Association, principally of the disease known by the name of typhoid pneumonia, or bilious pneumonia, to which lately the name "primary asthenic pneumonia" was given. He described the symptoms of this disease, and the *post-mortem* appearances, the latter of which were, imperfect infiltration, with inflammatory products of portions of the lung involved; purulent infiltration was almost constantly found; gangrene of the lung occurred more frequently in this than in any other variety of inflammation of the lungs; spleen enlarged. In his opinion, the disease depended upon a specific poison.

The operation of thoracentesis in cases of pleuritic effusion was not so harmless an operation as it was formerly believed to be, and the Doctor thought the operation should be abandoned. On the other hand, in cases of purulent effusion into the pleura, free incisions through the chest walls and occasional washing out of the cavity was reported to be excellent practice. One case of primary cancer of the lungs was related, but could not be diagnosed during life. The communicability of phthisis from husband to wife, and vice versa, had been frequently observed by authors, which might take place through the seminal fluid and the fœtus, if communicated by the husband. Finally, the compressed air treatment of lung affections was alluded to. It is the experience of those using it that it is highly beneficial and should be more generally used than is the case now. October 20th, "Cerebral Exhaustion, with Special Reference to its Galvano-Balneological Treatment," was the title of a paper read before the Journal Association by Dr. Geo. M. Schweig (proprietor of a Galvano-Balneological Institute in this city). Physicians, lawyers, and inventors are mostly found to suffer from nervous exhaustion, the Doctor said, on account of long-continued deep thought and hard study. The disease affects by preference the middle aged; the young and old are, comparatively speaking, almost exempt from it. Depressing emotions, sickness, render the nervous system more susceptible to cerebral disease than other causes. Primarily the disease is only functional, but might terminate in softening of the brain if not properly attended early. Hyperæmia follows each mental strain. If this greater afflux of blood occurs often, after short intervals of time, the hyperæmia becomes chronic and permanent, and leads often to serous transfusion or softening, due to over-dilation of the capillary vessels. Nutritive changes take place, according to Prof. Erb, in spinal neurasthenia for instance. The principal symptoms of neurasthenia were, a disinclination for mental labor; confusion of thought; the memory is often enfeebled. Disturbance of the heart's action, the intestines, the liver, and the stomach, are frequently observed. Neuralgiæ are frequent concomitants of this affection. Paralysis is rare. As regards treatment, it should be commenced early. Rest, tonics, and cheerful surroundings seem to be of the utmost importance. Galvanism, to which the Doctor is especially partial, was thought to be one of the best remedial agents to be employed. Strong stimulation is out of the question; neither can we galvanize the brain directly without causing giddiness, faintness, or ocular flashes. General galvanization administered at Dr. Schweig's Institute, in the form of the galvanic baths, was highly extoled for its virtues, as many cases he had treated had convinced him of their great value. In addition to this, cod oil, phosphorus, one or both, might be given as adjuvants with advantage. Phosphide of zinc is a remedy now frequently used in nervous exhaustion by Prof. Hammond. The bromides are given to combat the hyperæmia always present in these cases. Regarding the administration of the galvanic baths, the rule is to begin with mild currents, which are increased as soon as improvement is observed. Iron may be added to the bath with advantage. Fifteen minutes are sufficient for the administration of the first bath. If the patient feels fatigued, even ten minutes are sufficient. Later, twenty to twenty-five minutes may be the duration of the bath, according to circumstances.

"The Malady of Innutrition" was the title of a paper read before the New York Academy of Medicine by Dr. Geo. Bayles. The present hard times, in consequence of which thousands upon thousands of formerly well-fed, clothed, and housed citizens of this republic are suffering mental and physical distress unparalleled in our history, would be, and are already, the fruitful causes of a new malady in this country, to which the Doctor proposed to give the above appellation. Physical as well as mental degeneracy, tuberculosis, nervous disorders, uterine irregularities, skin diseases, were and will be the consequences of our hard times; these would prove fatal if not suppressed. Improper food, irregularly taken and badly digested, was a crying evil of the wealthy classes. Our boarding-school girls, the offspring of well-formed and healthy parents, show by their pallid faces, their sunken eyes, their protruding cheeks, their bulging, drum-like abdomen, and their sleepy appearance generally, as well as by their stunted growth and their physical and mental lack of proper development, the evil consequences of the badly prepared and unseasonably served food-supply of our boarding-school keepers! This food question, therefore, deserves attention, and is brought forward for the purpose of enlightening the public on this most important question: What to eat, when to eat, how much to eat. The malady of innutrition, or bad, improper nutrition, being a preventable disease, the Doctor pleaded for the application of the proper remedy—supply of food to the deserving poor during the coming winter, by establishing numerous centers of food-supply, free to all who needed it.

Dr. Gouverneur M. Smith referred to intemperance as one of the causes of innutrition. Both he and Dr. Peaslee, who followed him in the discussion on this important topic, at the request of the President, Dr. Purple, remarked that the paper was a very timely one, and should be brought to the notice of the public in order that the needy might be provided with the necessary aliment to keep body and soul together, and thus prevent the future generation from being decrepid and degenerated, which they would be if the parents were half starved and ill-nourished! Bad nutrition caused cancer and phthisis, and many ills from which we were liable to suffer, and if the father or mother, or both, are enfeebled, this weakness would certainly be transmitted to their offspring.

Dr. Hanks thought it would be well to send among the tenement-house population sanitary missionaries, with circulars, approved by the medical societies, containing suggestions regarding cheap but proper articles of diet. He did not believe diphtheria was caused by innutrition, as claimed by Dr. Bayles. Before he came to New York he practiced in one of the wealthiest New England towns, and had the misfortune of having seen many cases of diphtheria prove even fatal among well-to-do people of most regular habits and correct modes of living. The speaker himself lost a son, ten years old, who died of diphtheria.

Dr. Leaming gave a diet list for children, as follows: To children under eight years of age, milk and farinaceous food, with picked codfish, in summer time—no animal food, except milk, to be allowed. Between eight and fourteen years, solid animal food three times a week, soup twice a week, and fruit in its season. With this diet the mortality in one of the institutions under his care was reduced from five deaths in one year to one death in two years; and within the last six years, by further modifications of diet, there was but one death.

Dr. Joel Foster quoted John Randolph, who said "that Providence had given us an abundance of good food, but that the devil had furnished the cooks!"

Dr. Stephen Smith read a paper before the Academy, wherein he quoted a surgeon who performed twenty-nine amputations, one hundred years ago, without having lost one single case by death. This is certainly very remarkable, if true, the more so since, at that time, Lister's antiseptic treatment was not known.

Dr. Rockwell favored the Journal Association with a paper on "the indications for using the Galvanic or Faradic Currents of Electricity." Want of time prevented me from hearing the paper read, and, as a faithful correspondent, I give you the paper by title.

At the October meeting of the Neurological Society, Dr. T. R. Pooley read a paper on "Hemiopia." He passed in review the arguments advanced in support of the theories of total decussation and semi-decussation by different authors, and concluded that all the clinical facts, as well as post-mortem appearances, were more in harmony with a semi-decussation than a total crossing of the fibers of the optic nerve in the chiasma. A case, with post-mortem, which came under his notice, was reported, which is published in the Archives of Ophthalmology and Otology, Vol. 5, No. 2.

Respectfully and truly yours,

DR. RUDOLF TAUSZKY.

NOTE.—A number of book-notices and reviews, unavoidably crowded out of this number, will appear in our next.

EDITORIAL.

With this number we conclude the first volume of the Ohio Medical and Surgical Journal (new series). We make this arrangement—which will not in the least interfere with the current subscriptions—simply for the convenience of having the volumes for the future begin regularly with the year. As the present volume, beginning as it did in June, will consist of only four numbers, we have added eight pages to this number, as we did also to the August number, thus making a total of four hundred pages for the volume.

In reviewing our labors thus far, we have much to congratulate ourselves upon. The Journal has presented from the beginning a most creditable appearance (thanks to our excellent publishers), and has been filled with material of a superior quality. A review of the articles that have appeared will show that many of them have been from the pens of those who are recognized authorities and leaders in the medical world, and whose contributions have a permanent value.

While this is a source of pride and pleasure, we regret that more papers have not appeared from western contributors. This can not be from want of ability; for there are many of our practitioners, in both town and country, who are known as men of great experience and talent, and able contributors to medical journals. Perhaps it arises from distrust of, or lack of interest in, a new enterprise. If so, we can only work and wait until we have won the confidence and coöperation of our colleagues, and this we shall do, " bating no jot of heart or hope," and sparing no pains, till they will freely acknowledge the new candidate for their favor, and be proud to share their favors with it as well as other journals.

We take the liberty of pointing out that in all the four numbers so far issued there has been an original table of contents from beginning to end, while many of our articles have been extensively quoted and copied. We introduce in this number, for the first time, a translated article, and have made arrangements with a medical gentlemen residing in Paris to supply regular translations of the best French articles as they appear. We have the first of the series already in hand for the next number. We have also secured a regular correspondent in Vienna as well as in New York, and reiterate the assurance already given, that we are determined to make the Journal as good as the best.

And now, while we thus ardently plan and earnestly toil for the benefit of our friends and subscribers, may we not consistently ask them to do something for us. We need more subscribers. Will not each one who already takes the Journal try to secure us one or more new subscribers? This they can do without much effort or labor to themselves, and thus encourage the endeavor to sustain in the West a really first-class and original journal. In making this request, we do not feel as though we were begging, but rather suggesting what we know many will take pleasure in doing as soon as mentioned. And this is the most favorable time for such a movement on the part of our friends, as at the beginning of the year physicians generally determine what journals they will take for the next twelve months.

This Journal is not the organ of Starling Medical College, nor of its editor, nor of any person, party, or thing, except the medical profession at large. No one dictates its policy. It has no other aim than to disseminate useful information and sound principles in all that pertains to medical science. The editor is entirely untrained by any previous experience of the sort, and has come to the task conscious of many deficiencies and of many things yet to learn. He is thankful for, and encouraged by, the confidence and support already afforded him in an undertaking surrounded with peculiar difficulties, and hopes that in his earnest efforts to serve them faithfully, he may find the catalogue of his subscribers and supporters a constantly and rapidly increasing one.

RESOLUTIONS OF RESPECT.

At a special meeting of the Columbus Academy of Medicine, held on Monday evening, November 20, 1876, to take action with regard to the death of Dr. W. M. Awl, the following resolutions were unanimously adopted:

WHEREAS, We have heard with sorrow of the death of our venerable and distinguished fellow townsman and brother physician, Dr. William Macklay Awl; and

WHEREAS, We deem it appropriate and becoming that this Academy, as a representative body, should take notice of the departure of one whose long life of usefulness has been an honor to humanity and to his chosen profession; therefore be it

Resolved, That in the death of Dr. Awl this community has sustained the loss of one whose benevolence and public spirit have done much to raise the standard of philanthropy in our midst, and been largely instrumental in founding those noble charities of which we are so justly proud.

Resolved, That in the life and labors of Dr. Awl we recognize the peculiar type of medical labor and heroism once prevalent all over the West, but now disappearing with increasing population and the improved facilities of intercourse, which, though we can not imitate, we can never cease to admire.

Resolved, That we lament the close of this useful and honored life as the sundering of another tie between the past and the present, and the loss of an example we can ill afford to spare.

Resolved, That we honor in him who has now departed a union, all too rare, of the skillful physician and surgeon, the large-hearted philanthropist, the energetic and public spirited-citizen, and the consistent and devout Christian.

Resolved, That the members of this Academy attend the funeral of Dr. Awl in a body.

STARLING LOVING,
J. H. POOLEY,
G. M. WHITE,
C. B. FERRELL,
J. C. KROESEN,
Committee.

At a meeting of the Faculty of Starling Medical College, held November 20, 1876, the Dean in the chair, it was resolved that the College adjourn after noon on Tuesday, November 21, during the funeral services of the late Dr. William M. Awl, and out of respect to his memory as the oldest physician in Columbus. STARLING LOVING, *Secretary.*

On receiving intelligence of the death of our late colleague, William M. Awl, M.D., a special meeting of the Columbus Pathological Society was convened at their rooms to take measures expressive of their regret at his decease and the high regard in which he was justly held by those who had the pleasure of his acquaintance.

The President, J. B. Thompson, M.D., on taking the chair, announced the death of Dr. William M. Awl. He paid tribute to his sterling worth, his conscientious Christian character, and his life long labors in the service of science and humanity, closing his remarks by saying, "In this death we should all be admonished, myself especially, of the words of our Saviour, 'Be ye also ready, for in such an hour as ye think not the Son of Man cometh.'"

On motion, Drs. J. M. Denig, D. Kinsman, R. Wirth, and G. E. Summers were appointed a committee to draft resolutions expressive of the sense of the meeting. After a short time they presented the following:

WHEREAS, It has pleased the Almighty Ruler of life and death to take from his earthly labor our esteemed friend and professional brother, William M. Awl, M.D.; therefore,

Resolved, That in the character of the deceased we recognize the presence of all those traits which confer true dignity on the man, the physician, and the Christian; and that, although feeble health and increase of years prevented his engaging in the active duties of his profession for some time previous to his death, the medical profession of the city has sustained a loss of one of its best and most highly esteemed associates.

Resolved, That we honor him for his constant devotion to the interests of the afflicted, for his untiring and well-directed exertions in the establishment of State charities for their relief, and especially for his honorable, upright, and invariable trustworthiness and efficiency while in charge of the same.

Resolved, That we cherish his memory as a bright example of professional rectitude, Christian and manly virtues, worthy of all emulation.

Resolved, That we tender to his widow and family this expression of our sympathy and condolence.

Resolved, That a copy of these proceedings, signed by the officers of the Society, be sent to the family of the deceased, and published in the daily papers and the medical journals of the city.

J. B. THOMPSON, *President*,
GEORGE E. SUMMERS, *Secretary.* R. M. DENIG, *Vice-President.*